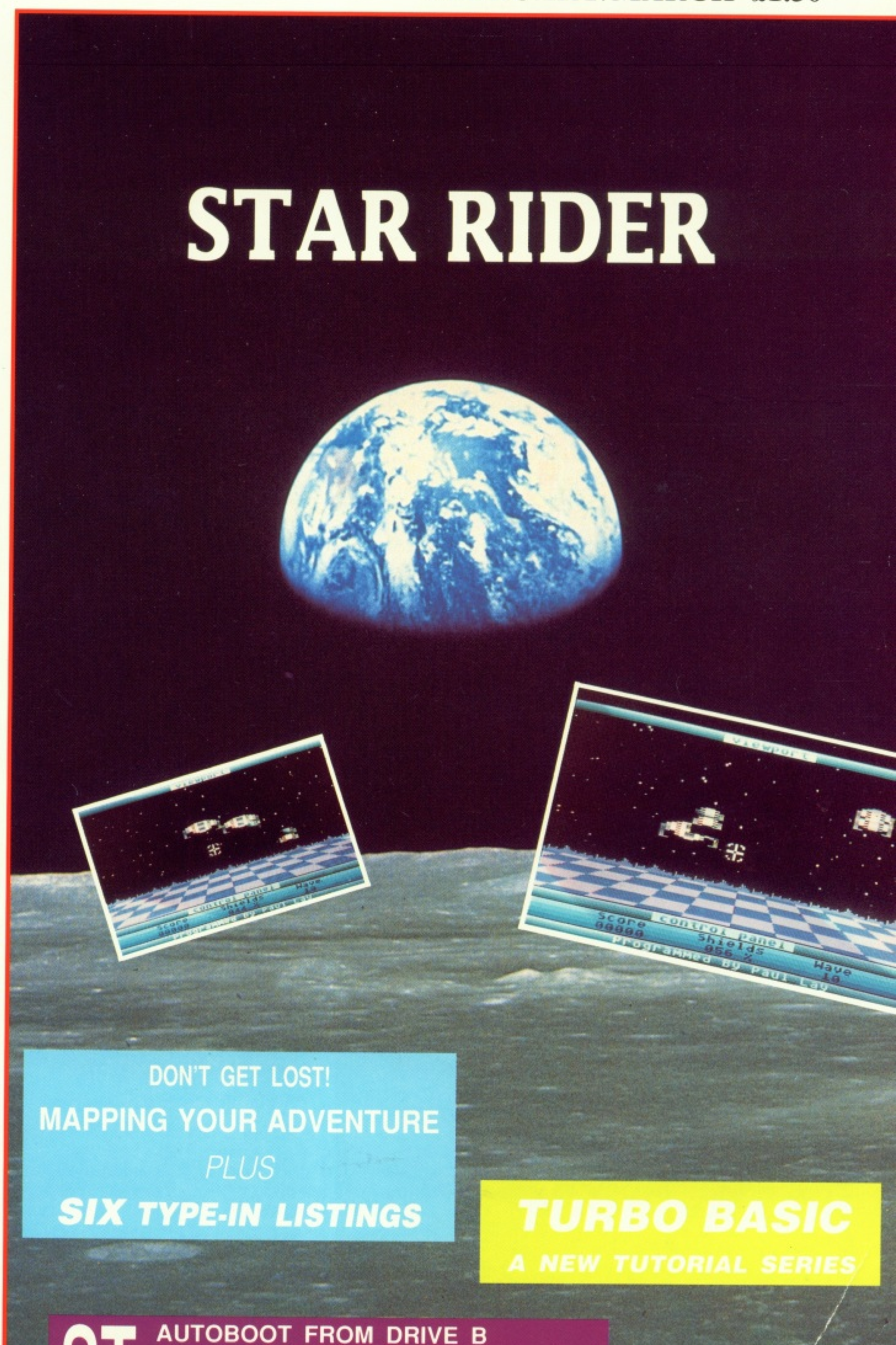
PAGE 6

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ATARI USER



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PAGE 6 OFFERS

ORDER FORM on page 41

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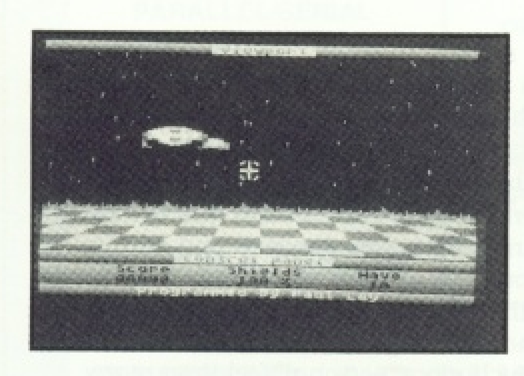
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'The magazine for the Dedicated Atari User'

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Issue 36 February/March 1989



STAR RIDER
Another Paul Lay masterpiece

ST FILE

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SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles.

The next issue of PAGE 6 ATARI USER will be on sale 23rd March. Editorial copy date 20th February

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PAGE 6 ATARI USER

Issue 36
February/March 1989

'The Magazine for the Dedicated Atari User'

ISSN No. 0952-4967

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham did the editing, layout etc.

Sandy looked after the advertising

Stacey did all those things around the office without which we would not survive (especially making the Editor's coffee!)

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

Garry Francis	**Mark Hutchinson**
Matthew Jones	**John Davison**
John Davison jr	**John Sweeney**
Paul Rixon	**Damon Howarth**

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their work and enthusiasm with other Atari users.

The cover photos for the past few issues were taken by **Paul Lingwood**. Thanks to him and to the various volunteers who agreed to dress up and apologies for not crediting the photos earlier.

The background photo on the cover this issue is courtesy of **NASA/SCIENCE PHOTO LIBRARY**. The picture shows Earthrise over the horizon of the moon taken from the Apollo 11 spacecraft in July 1969 which was the mission in which Neil Armstrong and Buzz Aldrin became the first humans to land on the moon. The overlaid photographs are from Paul Lay's type-in machine language game Star Rider in this issue.

Thanks to Nanci Griffith who continues to inspire no matter how many times you hear her, Van Morrison who snuck in as this was being edited and to Robin Williamson who, in The Barley, Scotland Yet and Verses at Powis, has once again reached previous heights.

Serious? You bet! But Atari is supposed to be fun as well isn't it?

The next issue of PAGE 6 could feature YOUR article or program, so SEND IT IN!

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuffer printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, PC Intercomm, STWriter, Protext and Fleet Street Publisher. Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to The Setting Studio in Newcastle (a typesetting bureau who really know what they are doing with the ST) to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

Editorial

RINGING THE CHANGES?

Isn't it funny how life turns out? Many of you will remember an Editorial about three years ago saying that I had turned down the chance to be Editor of the newly founded Atari User and here I am, effectively, the Editor of Atari User! This issue I have to welcome a lot of new readers to PAGE 6 ATARI USER and explain a little about the hectic events of last November and how they will affect the magazine that thousands of Atari users have come to love over the years. Firstly an apology to everyone who was mightily confused over the 'merger' of Page 6 and Atari User, believe me it was just as confusing for the people at this end! At the time of discussions with Database both the November issue of Atari User and Issue 35 of Page 6 were in their very final stages of preparation ready to go to the printers and there was simply not enough time to insert in either magazine a detailed report of what was happening. We managed to get half a page in and Atari User found some space at the bottom of the Contents page but that was all that could be managed. The situation was not helped by hopelessly inaccurate 'news' items in some of the general computer magazines but hopefully by now everyone will know where they stand.

So how does this 'merger' affect Page 6? Not greatly, as regards the contents of the magazine, as you will see from this issue. We will take on board some of the people who wrote for Atari User such as Len Golding and may introduce some other features such as a Top Twenty, if that is what you want, but in general we will continue to provide what we always have done, articles and programs written by people who love their Atari and not by journalists who are commissioned to write so many words to fill a page. The major change that you will notice is the change in the name of the magazine, or at least the change in emphasis, so that ATARI USER becomes the more prominent title. This is something that we needed to do to become much more noticed in the newsagents and among the software companies and in the advertising world and I hope that this alone will get us more notice in the areas where we have in the past taken second place to the Atari User of old. I will give you fair warning now that the name might change even further so that PAGE 6 does not appear on the cover but, have no fear, the PAGE 6 name will live on in spirit and will make several appearances inside! It will be quite strange, and a little sad, if we do drop the name from the cover but, in some areas, we must bow to commercial pressures.

If you are a long term reader then, there is no need to worry about drastic changes in Page 6 and if you are a new reader then I hope that you like what Page 6 has to offer and I welcome your feedback on what you want to see in the magazine. One thing to remember is that the magazine reflects your interests and mirrors your love of Atari much more than many other magazines. I hope that you will find that the magazine comes across with a much more 'personal' feel than many others as that is what everyone involved with Page 6 sets out to achieve.

THE SURVEY

Many thanks to all of you who took the trouble to fill in the survey in the last issue. The last time that we asked the readers to express their preferences the response was quite low but this time those survey forms came flooding in! Photocopies, pages torn out, re-typed questions, even folks going out and buying another copy of the magazine! They all came in. Thankyou.It will take time to analyse your answers but many of your comments have been noted already and have influenced one or two things in this issues such as the Turbo Basic tutorial. It was a great pity that the survey was composed and laid out before we took over Atari User as one or two of you pointed out but that is just the way things go. If you didn't see the survey, don't let that stop you sending in your views, we are always willing to listen!

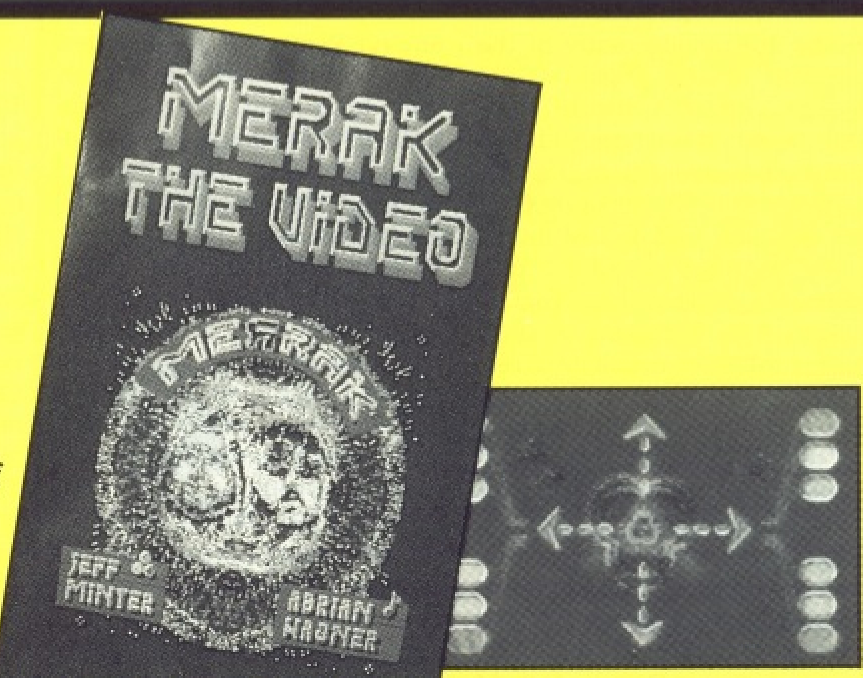
8 BIT SUPPORT

At the recent Atari Show a few disgruntled Atari User readers made certain comments about Page 6 not supporting the 8 bit machines and being too heavily influenced by the ST. Sorry, folks but you are talking out of your expansion ports! One of the major reasons for buying Atari User was so that we could strengthen our commitment to the 8 bit. We could have just let Atari User disappear but we felt that continuing the name, in whatever form, would ultimately benefit Atari 8 bit users in general. Sure, we do cover the ST but there are many good reasons for doing so, which are far too numerous to cover here. Our recent survey shows that a good number of readers are interested in the ST section even though they don't own an ST machine so we have no qualms about continuing to report the ST. Stop and think before you complain about the ST and just work out whether there would be such events as the Atari User shows without it.

Enough! Here's to a new year of continuing support for Atari in all forms. We'll be there and I hope that as many of you as possible join us.

Les Ellingham

WIN A VIDEO!



Here at PAGE 6 we are so impressed with Jeff Minter's MERAK video that we have decided to give away FIVE copies absolutely FREE in return for the answers to some simple questions.

FIVE easy questions for FIVE lucky people to win a copy of MERAK

1. **What was Llamasoft's first Atari game?**
2. **Who wrote the music for Merak?**
3. **What are Jeff Minter's favourite beasties?**
4. **What is the special programming language used in Trip-a-Tron?**
5. **What small price will you have to pay for a copy of Merak if you don't win one?**

You don't need an ST to appreciate MERAK - described in PAGE 6 as 'a new art form' - just a VHS video recorder so if you want to participate in a unique experience just write down the answers to a few questions and send them off to THE MERAK COMPETITION, PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR. You have only until the 15th February 1989 to send in your entry, after which date FIVE lucky winners will be drawn out of the cardboard box and the videos will be on their way.

If you don't want to wait until 15th February (and you shouldn't!) you can get a copy of MERAK - The Video by sending a cheque or Postal Order for £12.95 to Llamasoft, 49, Mount Pleasant, Tadley, Hants, RG26 6BN

newscene

A NEW SPARTADOS

Great news for all fans of ICD's SpartaDos is that a new cartridge version has been developed with only the manual to be finalised. SpartaDos X comes on a new style 'X' cartridge that will allow other cartridges to be plugged on top with SpartaDos having complete control over the added cartridge, allowing it to be switched on or off.

ICD claims that SpartaDos X 'includes 64k of the tightest machine code ever written' and, amongst many other features, it gives you more free memory in your XL or XE than is available with any other DOS. High Speed Data transfer is available as standard with the XF551, US Doubler enhanced 1050 drives and Happy 1050's with all densities supported and the ability to handle 3.5" and 5.25" drives. It can even cope with Hard Drives and 8" floppies!

The new SpartaDos will included full file ARCing with routines very close to the IBM ARC standard. SDX ARC is said to be the fastest and most efficient file compactor available on any 8 bit computer. Future options for the product include a Developers Toolkit, a Database program and an XEP80 handler if there is enough demand.

ICD have once again proved their commitment to the Atari XL/XE by spending a great deal of time and effort in producing SpartaDos X so let's hope that Atari owners worldwide show their appreciation.

The price at the time of writing was not finalised but Andrew Bennett of Frontier Software, distributors of ICD products in the UK, confirmed that his company will be distributing SpartaDos X at the most competitive price possible. The product should be available by the time you read this.

CAN'T FIND ANY SOFTWARE?

XL and XE software is becoming harder to find and many owners need to buy by mail order but even then it is difficult to know just what is available. One company, Sunaro, is trying hard to ensure that you can continue to buy software for your machine and has produced a new 1989 catalogue which lists close on 200 games on disk or cassette together with over 40 ROMs and a dozen or so utilities and educational items. There is also a good selection of software to clear at special prices and a vast number of ROMs for the 2600 games console.

Sunaro have been supporting the Atari since 1984 and, unlike many others, has decided not to jump on the ST bandwagon but rather to continue to provide exclusive support for the 8 bit machines. A copy of Sunaro's catalogue can be had by writing to Sunaro, P.O. Box 78, Macclesfield, Cheshire, SK10 3PF

NOT JUST A GEM!

Whilst most attention is being given nowadays to the ST, a small company over in the States is working hard to upgrade the Atari XL and XE range to provide many of the features of the popular GEM system. Reeve Software have developed the Diamond(TM) graphics based Operating System which will give youR XL or XE the look and feel of an ST.

The software provides a user definable cursor which can be operated by keyboard, joystick, touch tablet or mouse to access drop down menus with similar file handling capabilities found in the GEM system. Desk accessories can be installed and the environment includes Icons, Dialog boxes and windows that can be opened and closed or moved, just as on the ST! The system is similar to the GEOS system of the Commodore 64 which has increased the popularity of that machine even more and Reeve Software are hoping that Diamond will do the same for the Atari 8 bit machines.

The standard Diamond handler includes Desktop software that will enable easy access to DOS but, of course any further software used will need to be compatible so Reeve Software have developed several programs to run with the system. The Diamond Programmers Kit includes macros for MAC/65 and Basic source code to demonstrate how to use Diamond and therefore allow you to write your own programs. Diamond Write is a full featured word processor that allows multiple fonts and multiple text sizes in a document and Diamond Paint is a standard art package but with drop down menus. Perhaps of greater interest is Diamond Publish, a desktop publishing system for your XL/XE with, it is claimed, text flowing from column to column and around pictures with different fonts and font sizes. Future products planned include Diamond Basic; Diamond ASM and Diamond C.

The Diamond system comes on a super cartridge and retails in the States for $59.95 with the support programs at $29.95 dollars each. There is no UK distributor, and with the present lack of interest amongst UK outlets in the 8-bit machines, there is unlikely to be one, but Reeve Software can be contacted at 29W150, Old Farm Lane, Warrenville, IL 60555, U.S.A. There could just be a possibility that PAGE 6 might try and distribute this type of product and a few letters to Reeve Software might show them that owners in the UK are interested in their products.

ATARI IS ALIVE IN THE USA

Want to hear some rumours? Maybe these are all facts but so little 8 bit product is now being imported that it is impossible to tell. Anyway, a few products reported in the U.S. include Video Title Shop and Graphics Companion from Datasoft, and from No Frills Software, a program to convert icons from Print Shop, Newsroom, Awardware and Printpower. DOS XE for the new XF551 drive is also said to be near completion as is Atariwriter 80, the long announced and long awaited enhancement to Atariwriter giving it full 80 column support with the XEP-80. Apparently, Atari have had to re-write the entire program from scratch.

Also reported for the 8 bit is Karateka on cartridge with a two player mode and other cartridges include, Summer Games, Mario Brothers, Desert Falcon, Ace of Aces, Eagle's Nest and Airball plus a new adventure on cartridge called Dark Castle. It is not clear whether these are for the XL/XE machines or for the 2600 games console, more likely the latter (let's hope not!).

U.K. availability is unknown. A couple of addresses that might prove useful are Datasoft, 19808 Nordhoff Pl., Chatsworth, CA 91311, and No Frills Software, 800, East 23rd St., Kearney, NE 68847 both in the USA of course.

BALLBLAZER BOUNCES BACK

Ricochet is the right name for a software label that brings back classics like Ballblazer which is now available on cassette at the bargain price of £1.99 not long after Atari themselves re-released it. Ballblazer was originally produced by the team behind Lucasfilms and features two player action on a futuristic grid with some superb split screen scrolling which broke new ground on the Atari when it was first released. It still remains one of the most respected of Atari games and has not since been imitated.

Surely everybody has a copy by now, but if you are a new owner you can grab yourself one of the Atari classics at a real bargain price.



A joystick is a joystick, or is it? There is an amazing variety of joysticks on the market at the moment so a new one has to have something special. The Micro Blaster distributed exclusively by Compumart is a fairly standard design but is extremely rugged and comes with a normal 12 months guarantee of workmanship from the manufacturer but Steve Burke of Compumart is so confident of the construction that he says Compumart will give you a free replacement if you manage to break the stick under any circumstances!

The Micro Blaster certainly feels solid and the travel of the stick in all directions is very small giving it a very 'tight' feel with a positive click when the direction is engaged. The mechanism inside comprises four micro switches around a solid metal shaft with a further two micro switches for the dual fire buttons. Underneath is slide switch which sets the fire button to normal or quick. The connecting lead is reasonably long at 1.4 metres with a standard joystick connector. All in all, this joystick comes across as a very solid, well built unit. The only possible drawback is that it is quite large and heavy for small hands to hold, but this is a criticism that can be levelled at many joysticks.

There is not a lot you can say about reliability, it could take years to test a joystick to destruction! The Micro Blaster certainly feels more solid than many others on the market and would seem well suited to those who like tight, quick, control rather than the 'floppy' movement found on many another stick.

The Micro Blaster costs £12.95 and is available from Compumart Ltd, Freepost (PA6), Loughborough, Leics, LE11 0BR

ACROSS THE SEA TO IRELAND

If you live in Ireland you might be interested to learn of the Atari Users Group of Ireland who meet regularly in Dublin to provide Atari support. The groups contact has changed recently from that shown in recent Resource Files and the new man is now Mike Casey of 3, St. Kevins Park, Kilmacud, Co. Dublin. Meetings are held on the first Sunday of every month from 12 noon to 4 pm at Powers Hotel, Kildare Street, Dublin and the group publishes it own newsletter covering programming, reviews, help and the like.

Forthcoming meetings will include a demonstration on Video Digitising, a Music Month and a professional presentation on Desktop Publishing Practices so it looks like the Powers Hotel is a good place to be on Sunday afternoon if you find yourself in Dublin.

Mailbag

EDUCATIONAL SOFTWARE

Last year I purchased an 800XL with disk drive as I have two sons aged 10 and 13. They love the machine but only use it for games. I would also like to use it as an educational training aid as my eldest son is way behind in his education and could do with extra tuition at home. I now know that the 800XL has a wide range of capabilities but I do not understand the machine's Basic and so I cannot work out any programs.
What I am after is any listing that I can input for Maths, Spelling etc. or any educational programs. I have tried many Atari owners but all seem to use just games or utilities so please can you help?

T. Shepherd,
Birmingham

There have always been regular requests for educational software but very little produced in the way of commercial programs or even user-written software. Most of what is available is aimed at pre-school children, primarily because it is easier to write simple shape matching programs and the like. There have been one or two listings in past issues of PAGE 6 that might be useful, notably Most Heart Maths in Issue 28, and Turn The Tables from Issue 16 (now out of print).
There are also a couple of Education disks in the PAGE 6 Library of public domain software although these tend to concentrate on younger children but another disk called Word Builder might be more suitable as you can add you own words and definitions. We are always willing to publish listings of an educational nature but, truth to tell, most of those submitted are so ordinary or poorly written that they do not do the Atari justice. How about a spelling program that allows parents to insert their own words perhaps with a brief description of a word and four or five ways of spelling it? If it uses lots of the Atari's unique features, is user friendly both in play and in adding new words, and user proof we'll publish it. There's a challenge!

TURBO XEP

I would like to answer Michael Davies about Turbo Basic. You can autorun a Turbo Basic file on booting by naming it AUTORUN.BAS. When running a compiled program you are cut off from Basic but you can chain compiled programs by defining file names with the .CTB extender before compiling or by renaming the files after compiling. Personally I think that Turbo Basic is the second best thing I did for my Atari after subscribing to PAGE 6. I've also bought BASIC XE and I reckon Turbo Basic is just as good. You can't return to Turbo Basic after using DOS but on the other hand you can't compile BASIC XE. As for value for money, BASIC XE definitely cannot compare!
I have an XEP-80 hooked up to my 130XE with which BASIC XE is not compatible but Turbo Basic is not only perfectly compatible but also solves the problems of displaying and dumping Graphics 8 screens through the XEP-80 interface. Is there any literature for my XEP-80 or am I the only one who purchased one?

Joseph M Camilleri
Malta

Thanks for the tips on Turbo Basic. Many readers will be pleased to hear that, in response to so many requests, we are starting a tutorial series on Turbo Basic this issue and we hope that this series will answer many of your questions. Gordon Cameron has already sent in some cracking demos in Turbo basic and should give you plenty of hints in future issues. Be sure to write to Gordon and let him know what sort of things you want covered in the series so that he is not left struggling trying to work out exactly what it is you want to know.
As to the XEP-80 we are not sure how many, or how few, were sold in this country and we are certainly not aware of any supporting documentation. We would be interested to hear from any readers who have the XEP-80 and more so from anyone who has worked out any programs or patches that take advantage of the unit.

TYPING TUTOR

I am a newcomer to computing and am finding that lack of typing skills is limiting my progress. Would you know if a typing tutorial program is available want to improve my typing skills with my Atari. Can you tell me if there are any programs available which would help me?

G.D. Pole
Nottingham

There have been a few commercial releases in the past but, as far as we are aware none are currently available. There was a listing in Issue 26 called FLEXIBLE FINGERS which will give you plenty of typing practice and you can begin by typing the listing in! If your typing needs that much improvement you can always buy the disk for Issue 26 for just £2.95 with the program and all others from that issue ready to run.

THE LOST SOFTWARE

I do agree with the PAGE 6 policy on piracy and copying but having frequently bought whole systems from people and having acquired lots of 'blank' disk I am amazed and dismayed by what I have found on them. Amazed at the quality and dismayed by the unavailability (officially) of some games and utilities. I realise that a lot of top class games etc. were still born because of piracy in the early stages, however it is a shame that these games never had the accolade they deserved and I feel sorry that their authors never had the chance to see their efforts acclaimed in print. Although I have reformatted 90% of such disks and destroyed the illegal copies on them, there are some that I cannot bear to part with and I won't destroy them because I can't get the real thing, even second hand! My example of Last Starfighter is a case in point. It is far better, in my view, than the 'official' Star Raiders II.
Some of this stuff is now 6 to 8 years old, what has happened to the copyrights etc. of these still eminently playable games? Could they not be released officially?

A long time Atarian

We have kept these comments anonymous because they were submitted on a survey form and not by letter but the points raised are sufficiently interesting to publish, particularly after the letter in the November Atari User regarding pirated software, in response to which we have had a number of letters asking for the address of the writer so they can get in on the action! This raises some difficult questions. Piracy is wrong but with so little software becoming available nowadays for the 8 bit machines and with so much unreleased material around it is no wonder that today's users want that software. We obviously can't become involved in promoting illegally held software but as it is unlikely that any company will now release these 'long lost' programs what can be done to make them available? What is the copyright situation of these programs? In this country they would remain in copyright even though they were not released but do the same laws apply in the U.S.A. or do copyright laws apply for only a limited period? Perhaps one of our American readers would advise. We are not advocating that anyone pounce on these programs in the excuse that the copyright has expired but perhaps the original authors now have the rights back and cannot find anyone to publish for them? PAGE 6 would be quite interested in discussing a possible marketing arrangement with anyone who has 'unreleased material' or programs that were once released but are no longer available but the likelihood of any company or author responding is pretty remote. Most probably, whoever owns the rights to these programs has forgotten that they even exist! So, what can we do about the wealth of software that is still unavailable for the Atari? Any ideas?

GENEALOGY

I am writing to ask you if you can help me find a genealogy program. I have tried the usual software outlets both here and in the States but none have any in stock. Can you put me in touch with William Benbow who reviewed three packages in Issue 30 of PAGE 6?

Paul Thomas
Birmingham

We have had a surprising number of enquiries about genealogy programs and always find such 'minority interest' enquiries quite interesting. There is virtually no chance of a retailer stocking this kind of software in the UK so the only thing you can do is write direct to the people who produce the programs. For the 8 bit, the best program is probably Family Tree by Direct Lines Software, 4755 Bamboo Way, Fair Oaks, CA 95628, U.S.A. and for both the 8 bit and ST there is a program called Compute Your Roots from Wasatch Genealogical Software, 2899 West 7550 South, West Jordan, Utah 84084, U.S.A. There is also another ST program by a company called Flying Pigs Software(!) which we recommended to another reader a while ago but now can't find the address. Whoever it was we recommended it to was very pleased with the software but could he please let us know the address once again! There is another program for the ST called The Generation Gap (might even be the Flying Pigs one) which we don't have details of at the moment but which will be included in demo form in the PAGE 6 ST Library by the time you read this. Finally you might be interested in subscribing to a quarterly magazine called Genealogical Computing from Ancestry Inc., P.O. Box 476, Salt Lake City, UT 84110, U.S.A. Annual subscription is $35 including overseas postage. If you want more details from any of these companies, drop them a line, mention PAGE 6 and enclose a couple of International Reply Coupons for their response. Most small American companies are only too willing to help.

As for writing to William Benbow or other contributors, we don't usually give out contributors addresses unless they have given specific permission but we are always happy to pass on your letters if they are in an envelope addressed to the author and are enclosed in another envelope addressed to PAGE 6 with a request to pass the letter on. Remember that you should enclose a stamped addressed envelope if you expect a reply and in the case of contributors like William Benbow, who lives in Canada, you should enclose a couple of International Reply Coupons.

CONNECTING A BROTHER

I have been offered a Brother HR5 Epson compatible 9 pin dot matrix printer which has a standard Centronics interface so when I buy this interface for my 800XL would it be possible to connect it to my computer and use it with AtariWriter or Paperclip word processors?

Holger Klewer,
Kingston-upon-Thames

There is still a great deal of confusion over printer interfaces. Some printers come with a choice of a plug in serial interface or Centronics parallel interface and many owners assume that if they buy the Centronics interface they can just plug it into their XL or XE machines. Not so. Any printer with either a built-in or optional Centronics interface will work with the XL or XE machines but only if used with a special Atari printer interface. The cheapest, and the best, of these is the ICD Printer Connection available from Frontier Software at P.O. Box 113, Harrogate, HG2 0BE for £29.95. Buy yourself one of these and you can connect any Centronics compatible printer to your Atari but you might find that you have problems in choosing software to use with any printer that is not Epson compatible. You should have no problems in using either Atariwriter or Paperclip with your Brother or with almost any other printer. Paperclip in particular is suitable for a variety of printers as you can define your own printer drivers.



AROUND THE WORLD

I'm writing to ask if there are any Atari users who would like to be a pen-pal with me because, believe it or not, here in the nine islands of The Azores there are only 24 Atari owners, three of whom own ST's. Software is practically nothing with only a few budget games like Ballblaster, Buggy Night, Dig Dug and Hyperblast and not much more. The only good software I have was given to me by a friend of mine in America although I recently bought Mini Office II even though it was difficult to get. Sometimes at school I have discussions with friends about the superiority of the Atari against the Spectrum and when I try to prove them wrong my arguments go down the drain because of the lack of software.

I have also written to Pulsar Software to see if they can send me information about Fig Forth as I want to amplify my machines horizons with such a language. I would like to thank all the team that has been responsible for producing Atari User in the past and especially Andre Willey for his marvellous work and I look forward to hearing from anyone who wants to write to me.

Carlos Jorge Sousa,
1a Rua do Terreiro 39,
Sao Roque,
Ponta Delgada 9500,
Sao Miguel, Azores,
Portugal

The Azores, eh? We are always getting letters from people in this country complaining about how difficult it is to get software or meet other users but can you imagine how difficult it must be for Atari owners in some of the more far away countries? One interesting comment repeated several times in the recent Survey was that some readers would like to know what it is like to be an Atari User in other countries, so here's a chance for some of our overseas readers to write in and tell us about software availability, local user groups, support from Atari, what contact they have with other users etc. If we get enough response we will run a short International column in the next few issues telling you exactly what it is like in all those far flung places. So let's hear from our readers in Norway, West Germany, Sweden, Greece, United Arab Emirates, Kuwait, New Zealand, Australia, The Falklands, Turkey, Peru, Finland, Italy, Tanzania, Czechoslovakia, Switzerland, Iceland, Jordan, South Africa, Malta, Yugoslavia, Poland, Spain, Saudi Arabia, Zimbabwe, Venezuela, Hungary, Israel, India, the Solomon Islands and even Papua New Guinea! Believe it or not these are just some of the countries where PAGE 6 is read! Let's hear what it is like out there.

FASTER CASSETTE

I am very new to ATARI and I am having problems with my XC12 tape recorder. The problem is that it is too slow, so I was wondering if there is an upgrade to make it faster?

Blair Sutton
Brighton

Yes, there is. A company called Rambit has been producing various cassette upgrades for several years and they have developed upgrades specifically to enable faster loads of both your own and commercial software. Rambit often advertise in Page 6 and will be happy to send you details of their products if you send them a s.a.e. to 16, The Green, Thurlby, Bourne, Lincs, PE10 0HB.

Write to Mailbag to air your views on Atari or ask us for advice? Send your letters to Mailbag, PAGE 6, P.O. Box 54, Stafford, ST16 1DR

HOW TO TYPE IN THE LISTINGS
and get them right!

The program listings in PAGE 6 are prepared carefully to ensure that they can be typed in as easily as possible. Before typing any listings ensure that you are familiar with the use of the Shift and CONTROL and INVERSE keys as outlined in your computer manual. The listings are prepared to match exactly what you see on screen. Every character that you may see in a listing is included in the chart below for cross reference. By using TYPO 3 you can ensure that you type in the programs EXACTLY as they are printed. Remember, a single typing mistake may mean a program will not run.

WHAT ARE THOSE CODES?

Each line of a program printed in PAGE 6 begins with a special two letter code. THESE SHOULD NOT BE TYPED IN. They are used by the program TYPO to check that you have typed each line correctly. IF YOU HAVE NOT ALREADY TYPED IN THE TYPO 3 LISTING PLEASE DO SO NOW. The program can be used as you type in each line of a program or to check an already typed program. The code for each line will match but if you have problems check the listing conventions below carefully, you are most probably typing a CONTROL character incorrectly. TYPO 3 cannot check whether a line has been missed so if you have problems in running a listing count the lines in the program and ensure none are missing. If the TYPO codes match and the program still does not run, LIST it to cassette or disk using LIST "C:" or LIST "D:filename", switch off the computer, re-boot and then ENTER the program using ENTER "C:" or ENTER "D:filename". Save this version in the normal way.

HOW TO USE TYPO 3

1. Type in the listing carefully for although you can use TYPO 3 to check itself (see 6 below) it may not work if you have made mistakes.
2. SAVE or CSAVE a copy of the program.
3. Each time you want to type in a program listing RUN TYPO 3 first. The program will install a machine code routine in memory and then delete itself. Now type in a line as shown in the magazine *excluding the first two letter code* and press RETURN.
4. A two letter code will appear at the top left of your screen. If this code matches the one in the magazine carry on and type the next line. Note, the code will not match if you use abbreviations. If you prefer to use abbreviations LIST the line you have just typed, move the cursor to that line and press RETURN. The code should now match.
5. If the code does not match, use the editing keys to correct the line and press RETURN again. Repeat if necessary until the codes match.
6. To check a line you have already typed LIST the line, place the cursor on that line and press RETURN.
7. When you have finished a listing just SAVE or CSAVE it in the normal way.

You can type in a program without using TYPO 3 and then check it by SAVEing or CSAVEing a copy of the program, running TYPO 3 and then LOADing or CLOADing your program and proceeding as in step 6 above.

Always SAVE or CSAVE a program before running it and always use TYPO before telling us that a program will not run.

OUR UNIQUE LINE BY LINE CHECKER WORKS ON ALL ATARI XL/XE
and earlier 8-bit machines

```
EI 1 REM ******************************
AL 2 REM *  TYPO III by Alec Benson   *
     *           June 1985            *
SA 3 REM * A proofreader for ANTIC and *
     *   PAGE 6 based on TYPO II   *
     * published by ANTIC magazine *
EL 4 REM ******************************
SG 100 GRAPHICS 0
WG 110 FOR I=1536 TO 1791:READ A:CK=CK+A:
   POKE I,A:NEXT I
CG 120 IF CK<>30765 THEN ? "Error in DATA
    statements - Check Typing":END
YM 130 A=USR(1536)
VT 140 ? :? "TYPO III is up and running":
   NEW
MA 1000 DATA 104,160,0,185,26,3,201,69
HG 1010 DATA 240,8,200,200,200,192,36,208
QB 1020 DATA 242,96,200,169,79,153,26,3
RK 1030 DATA 200,169,6,153,26,3,162,0
RR 1040 DATA 189,0,228,157,79,6,232,224
TO 1050 DATA 15,208,245,169,93,141,83,6
KC 1060 DATA 169,6,141,84,6,173,4,228
EU 1070 DATA 105,0,141,95,6,173,5,228
BK 1080 DATA 105,0,141,96,6,169,0,162
KK 1090 DATA 3,149,203,202,16,251,96,0
ZR 1100 DATA 0,0,0,0,0,0,0,0
LD 1110 DATA 0,0,0,0,0,0,32,94
JM 1120 DATA 6,8,72,201,155,240,55,230
TV 1130 DATA 203,133,209,138,72,169,0,133
TW 1140 DATA 208,162,8,10,38,208,6,209
MF 1150 DATA 144,7,24,101,203,144,2,230
RL 1160 DATA 208,202,208,239,133,207,24,1
   65
TM 1170 DATA 204,101,207,133,204,165,205,
   101
AW 1180 DATA 208,133,205,165,206,105,0,13
   3
XH 1190 DATA 206,104,170,104,40,96,138,72
NR 1200 DATA 152,72,162,0,134,207,134,208
GF 1210 DATA 160,24,6,204,38,205,38,206
EA 1220 DATA 38,207,38,208,56,165,207,233
TM 1230 DATA 164,170,165,208,233,2,144,4
SK 1240 DATA 134,207,133,208,136,208,227,
   162
CB 1250 DATA 8,165,207,133,204,165,208,6
XN 1260 DATA 204,42,201,26,144,4,233,26
MB 1270 DATA 230,204,202,208,242,133,205,
   169
BC 1280 DATA 128,145,88,200,192,40,208,24
   9
WV 1290 DATA 165,204,105,160,160,3,145,88
QA 1300 DATA 165,205,24,105,161,200,145,8
   8
MQ 1310 DATA 32,69,6,104,168,76,153,6
```

Normal	Inverse	Shift	Inverse Shift	Control	Inverse Control
1		!			
2		"			
3		#			
4		$			
5		%			
6		&			
7		'			
8		@			
9		(			
0		)			
<					
>					
a		A			
b		B			
c		C			
d		D			
e		E			
f		F			
g		G			
h		H			
i		I			
j		J			
k		K			
l		L			
m		M			
n		N			
o		O			
p		P			
q		Q			
r		R			
s		S			
t		T			
u		U			
v		V			
w		W			
x		X			
y		Y			
z		Z			
-		_			
=		|			
;		:			
+		\			
*		^			
,		[			
.		]			
/		?			

■ INVERSE SPACE

Other codes

- ESC ESC
- ESC CTRL -
- ESC CTRL =
- ESC CTRL +
- ESC CTRL *
- ESC SHIFT CLEAR
- ESC DELETE
- ESC TAB
- ESC SHIFT DELETE
- ESC SHIFT INSERT
- ESC CTRL TAB
- ESC SHIFT TAB
- ESC CTRL 2
- ESC CTRL DELETE
- ESC CTRL INSERT

ST THE VIRUS DESTRUCTION UTILITY ST

The article last issue on viruses gave details of how to obtain The Virus Destruction Utility from Richard Karsmakers in Holland. The method of payment, through a bank transfer, was somewhat complicated so we have arranged that you may pay direct by ordinary cheque or Postal Order. Your disk will be despatched immediately upon receipt of your payment.

To order your copy of The Virus Destruction Utility send a cheque or Postal Order for £6.95 made payable to Richard Karsmakers to:

RICHARD KARSMAKERS
IB BAKKERLAAN 15 - III
NL-3582 VB UTRECHT
THE NETHERLANDS

Your registered copy will be despatched by return and you will be eligible for updates as indicated in the article.

Since the article was written we have received a copy of the most up to date version of The Virus Destruction Utility and it appears to be very comprehensive and easy to use with options not only to destroy any viruses but also to protect your disks against future virus infection. You may not have any viruses but you never know and The Virus Destruction Utility is a small price to pay for peace of mind.

SYNTH II

A while ago Bryan Kennerley brought you Original Synth, now he explores the possibilities of linking sound channels together to produce 16 bit sound

One of the major, but sadly underused, capabilities of the POKEY sound chip is that of 16-bit sound. As you probably know, the SOUND command of BASIC can produce 255 pitch levels with any particular distortion, covering a 3.5 octave range. Although this is quite acceptable for many applications, it by no means stretches the chip to its limit. By joining two sound channels together, however, the pitch can be represented using two bytes, suddenly increasing the number of pitch levels to 65536. This increases the number of octaves available substantially from 3.5 octaves to over 10.5. Also, since the notes are much closer together, some interesting effects can be produced.

A musical note can be played with the pitch being varied slightly every vertical blank interval (50 times a second), causing the note to 'warble', an effect commonly heard on the Commodore 64 (although this is built into the hardware of the SID chip), and increasingly on the ST series.

Table 1 shows the bit usage of location 53768, the audio control byte (commonly called AUDCTL). Bits 1, 2 and 7 are concerned with distortion so we will ignore these. A brief mention of clocks is needed however (bits 0, 5 and 6). As you may or may not know, the POKEY chip as well as controlling sound production, also regulates the timing of various input/output functions such as loading from tape/disk, counting down hardware timers etc. To make these operations more flexible, the chip is capable of running at three different speeds: 15Khz, 64Khz and 1.79Mhz - these are the values for American Ataris, but apparently British Ataris run slightly faster. The lowest notes are produced using the 15Khz clock although these generally have little musical quality and are really just streams of clicks. The 64Khz clock is used by BASIC, the familiar 3.5 octaves being the highest available at this clock rate. Since the notes get lower as the pitch number gets higher, it is not hard to see that if 16-bit sound is implemented using either of these clocks, only very low octaves would be gained. The clock should therefore be set to 1.79Mhz if 16-bit sound is used. The result of all this is that a value of 80 (64 + 16) should be placed in location 53768 to enable 16-bit sound. If you haven't done so already, type in the listing. You will see 4 variables at the start - DIST, WAIT, AMP and STEP. DIST is the distortion level and volume of the sound, calculated by:

DIST = Distortion * 16 + Volume

The significance of the other three variables will hopefully be explained by Figure 1.

WAIT (0-255) is the number of jiffies (50ths of a second) before the note starts to warble.
AMP (1-127) is the number of jiffies that pass before the direction of the warble is reversed - this is also proportional to the length of the wave, and finally:
STEP (0-255) is the amount added to/subtracted from the note pitch every jiffy.

Incidentally, quite a good lightning effect can be obtained using the following parameters and the highest octave available:

DIST = 15, WAIT = 0, AMP = 127, STEP = 4

Three functions are also available from within the main program. These are accessed via the function keys:

START - move entire keyboard down 1 octave.
SELECT - toggle cassette unit on/off.
OPTION - move entire keyboard up 1 octave.

One small problem I encountered while writing this program was in silencing the notes. If the volume is set to zero when no key is pressed and then reset when one is pressed, an unsoundly click is produced, spoiling the effect. This can be overcome by zeroing the pitch instead of the volume. This works fine until you realise that when a distortion is used, sounds are still produced with zero pitch. The solution is a compromise, zeroing the pitch at all times, but only zeroing the volume if an impure tone is being used.

Although this program allows frequency modulation only, volume modulation could easily be added to the VBI routine, and a music routine could use pitch/volume tables to dictate the progress of the sound. This of course could be done using all four 8-bit channels, the result being something like that in International Karate, or using 16-bit sound like that in AR-The Dungeon, but unfortunately the alternative (no music) is that which is used all too often. Hopefully this will soon change.

Bit	Description
7	4 bit poly enable
6	Clock channel 1 with 1.79Mhz
5	Clock channel 3 with 1.79Mhz
4	Join channels 1&2 (16-bit)
3	Join channels 3&4 (16-bit)
2	High pass filter on channel 1 clocked by channel 3
1	High pass filter on channel 2 clocked by channel 4
0	Switch clock base from 64Khz to 15Khz

TABLE 1: Bit usage of AUDCTL.

SYNTH II

```
WO 1 REM *****************************
RX 2 REM *          SYNTH II         *
ZC 3 REM *                           *
DI 4 REM *    by Bryan Kennerley     *
SR 5 REM * ------------------------- *
KC 6 REM * PAGE 6 MAGAZINE - ENGLAND *
WU 7 REM *****************************
NN 8 REM
ZW 100 DIST=175
YA 110 WAIT=20
AC 120 AMP=2
FO 130 STEP=3
JX 140 IF PEEK(28701)=141 AND PEEK(29002)
   =6 THEN 340
VW 150 REM MAIN CODE
WV 160 FOR X=28672 TO 29089:READ D:POKE X
   ,D:NEXT X
TD 170 DATA 173,34,2,141,137,6,173,35,2,1
   41,138,6,162,0,142,128,6,202,142,135,6
   ,169,128,141,129,6
JR 180 DATA 173,140,6,141,136,6,169,0,141
   ,0,210,141,1,210,141,2,210,173,139,6,1
   41,3,210,169,80,141
JC 190 DATA 8,210,169,3,141,15,210,169,6,
   160,65,162,113,32,92,228,169,0,141,130
   ,6,141,0,210,141,2
MX 200 DATA 210,169,255,141,131,6,169,0,1
   41,3,210,173,31,208,201,7,208,118,169,
   0,141,135,6,173,220,2
CJ 210 DATA 201,17,208,26,169,0,141,220,2
   ,141,200,2,169,6,172,137,6,174,138,6,3
   2,92,228,169,255,141
WS 220 DATA 252,2,104,96,173,15,210,41,4,
   201,4,240,181,173,9,210,205,131,6,240,
   194,173,140,6,141,136
BE 230 DATA 6,173,9,210,141,131,6,10,168,
   185,162,113,141,0,210,141,132,6,185,16
   3,113,141,2,210,141,133
TM 240 DATA 6,208,5,173,132,6,240,155,169
   ,128,141,129,6,169,0,141,128,6,173,139
   ,6,141,3,210,169,1
QL 250 DATA 141,130,6,76,89,112,173,135,6
   ,201,1,240,136,169,1,141,135,6,173,31,
   208,201,6,240,22,201
EH 260 DATA 5,240,7,201,3,240,48,76,89,11
   2,173,2,211,73,8,141,2,211,76,89,112,1
   73,134,6,201,6
TG 270 DATA 240,24,162,0,30,162,113,62,16
   3,113,232,232,16,246,173,200,2,56,233,
   48,141,200,2,238,134,6
BL 280 DATA 76,89,112,173,134,6,240,248,1
   62,0,94,163,113,126,162,113,232,232,16
   ,246,173,200,2,24,105,48
LH 290 DATA 141,200,2,206,134,6,76,89,112
   ,173,130,6,240,89,173,136,6,240,6,206,
   136,6,76,159,113,173
NP 300 DATA 128,6,240,32,173,132,6,56,237
   ,142,6,141,132,6,176,3,206,133,6,238,1
   29,6,173,129,6,205
YV 310 DATA 144,6,208,35,206,128,6,76,147
   ,113,173,132,6,24,109,142,6,141,132,6,
   144,3,238,133,6,206
SE 320 DATA 129,6,173,129,6,205,143,6,208
   ,3,238,128,6,173,132,6,141,0,210,173,1
   33,6,141,2,210,76,95,228
FW 330 REM PITCH DATA
UO 340 RESTORE 350:FOR X=29090 TO 29217:R
   EAD D:POKE X,D:NEXT X:OCT=3
DR 350 DATA 152,12,240,14,48,11,0,0,0,0,0
   ,0,0,0,0,0,244,3,0,0,132,3,0,5,166,2
SU 360 DATA 112,4,84,3,248,2,0,20,0,0,28,
   21,0,0,0,0,192,17,192,23,160,26,0,0,0,
   0
CJ 370 DATA 120,7,152,5,0,0,76,6,104,8,12
   8,9,80,13,0,0,224,11,208,15,0,0,16,14,
   152,10
GP 380 DATA 0,10,168,6,0,0,8,7,76,5,0,10,
   240,5,232,7,224,8,52,4,0,0,188,3,0,0
MS 390 DATA 204,2,192,4,0,0,38,3,0,0,208,
   16,96,22,0,0,0,0,0,19,48,25,0,0
WA 400 REM IF PURE NOTE THEN DON'T
            SWITCH VOLUME OFF
TD 410 IF DIST>=160 AND DIST<=175 THEN FO
   R X=28756 TO 28760:POKE X,234:NEXT X
YK 420 REM SETUP M/C VARIABLES
VA 430 POKE 1670,OCT
AL 440 POKE 1675,DIST
AN 450 POKE 1676,WAIT
UF 460 POKE 1677,AMP
FR 470 POKE 1678,STEP
AI 480 POKE 1679,128-AMP
UZ 490 POKE 1680,128+AMP
IF 500 POKE 712,2
IB 510 POKE 732,0
LG 520 X=USR(28672)
OA 530 END
```

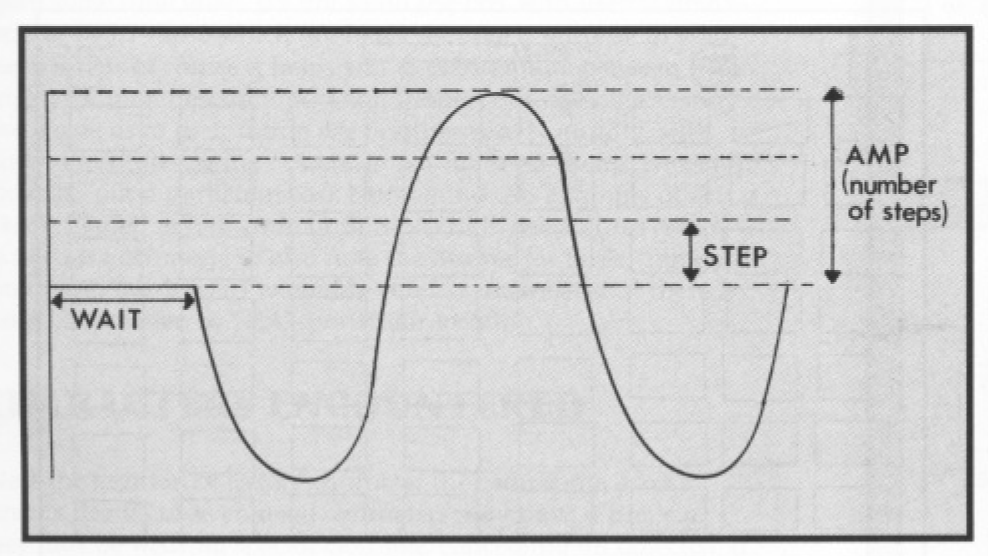


Figure 1: Explanation of Parameters.

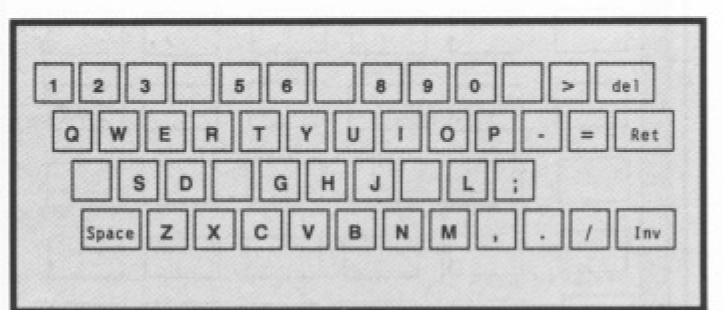


Figure 2 - Notes on keyboard

MAPPING ADV

> You are hopelessly lost in this Adventure, no one knows where you are, least of all you. What now?
> PANIC
> That will not help you, the authors of this Adventure want to make you a quivering wreck
> HELP
> O.K. just this once. Try reading John Barnsley's article in PAGE 6

It is surprising how many people try to solve an adventure without taking notes and I bet that there are thousands who have given up on all sorts of adventures. The only way to become a competent adventurer is through experience but there are ways in which you can help yourself and I hope to show you one way in which you can come closer to solving almost any adventure. Advanced players will already have worked out their own system of mapping but for the Beginner or Intermediate level player here are some tips that will help you get through almost any adventure, providing you can solve the puzzles!

It is essential to maintain a clear record of your progress in a tidy and readily accessible manner, what you need to do is develop a system that will be flexible enough to cater for most of the adventures you may come across. I have used a simple system of A4 sheets over the years that has served me well. This 'system' allows for the clear recording of:

EXACT LOCATION with brief description
OBJECTS FOUND
CHARACTERS ENCOUNTERED
AVAILABLE EXITS FROM EACH LOCATION
'CONDITIONAL' EXITS
COMPASS HEADING
SHEET NUMBERING
RANDOM ELEMENTS
BASIC MAZES

We'll look at each of these items in turn but first let's take a look at the mapping sheets. The simple and inexpensive system I use will be described in more detail shortly but firstly it should be appreciated that very few adventure programs give a hint to the player as to the number of locations to be found. Whilst it is reasonable to expect that a Level 9 adventure will offer in excess of 190 locations, the majority of games fall within the 75-125 location range. Many adventures have very few locations with many more problems, but this by no means implies that the larger adventure is short of puzzles! Experience will tell you what to expect from a particular software house or writer.

To help you in forming an effective map system I have designed a basic A4-size sheet - of TWO designs - which will provide for the vast majority of your needs during the course of the game, with most of your 'education' recorded on a single sheet!! The two basic sheets are in vertical and horizontal format, as depicted in Figures 1 and 2. Sufficient space should be allowed around the perimeter of each sheet to provide for the insertion of adjoining sheet markers. It is advisable to carefully draw one copy of each of your two MASTER sheets and photocopy a supply for actual use which works out at about four pounds per hundred sheets on average, based on current charges.

Each working sheet should be uniquely numbered or lettered for identification during play. It is difficult to advise on the insertion of your FIRST location but a general rule is to commence as near as possible to the centre of a horizontal unused sheet. This can be adjusted as the layout of your adventure map becomes clearer.

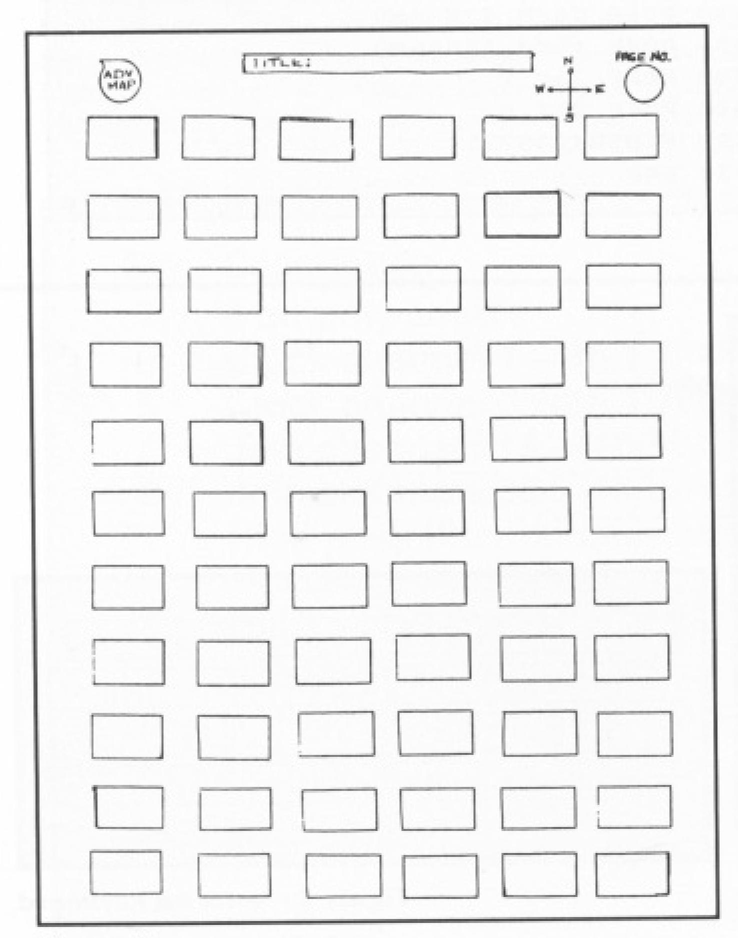


Figure 1

Figure 2

G YOUR
VENTURE

JOHN R. BARNSLEY LETS YOU IN ON SOME OF THE SECRETS OF A LIFETIME'S ADVENTURING

GETTING STARTED

Right, let's assume that you have your sheets drawn out and photocopied and are ready to play. Boot up you favourite adventure and read on.

EXACT LOCATION

Insert in each box a brief title of each location you visit. In some adventures the first few locations may all seem alike but in the main all descriptions differ slightly, e.g. Rocky Plain, Rock Strewn Plain, etc. - be careful! Desert, forest, jungle and cave-tunnel locations are sometimes deliberately included in the form of a maze to confuse you, and will thus have the same location descriptions - or will they? You should read the text description of your current location very carefully as there may be a subtle difference in the wording which is easily missed by a cursory glance, e.g. Twisty Little Passage, Twisting Little Passage. Basic maze mapping will be covered more fully later, so don't dwell on it at this stage.

OBJECTS FOUND

Carefully note in each location box any particular objects found. Enclose these items in brackets so as not to get confused with the location description when you come to study your map again some time later. Try not to fill the box with useless items - include ONLY those which are likely to serve a purpose in your quest, unless of course it helps you to differentiate between similar location descriptions! Examination of some objects may give a clue as to their future use or otherwise. Naturally, with many adventures, some objects do not manifest themselves until you carry out a particular task beforehand. An example of this is a knife hidden in a drawer, or BEHIND it! In these cases it may be to your advantage to also note the drawer (or table/cupboard containing the drawer) to enable you to remember that there is something hidden in THAT particular location.

CHARACTERS ENCOUNTERED

Note the location of EVERY character that you come across - alive or dead! - as even dead characters may have a use, e.g. they may be wearing special clothing, concealing an object(s), a food source for monsters/plants, etc. Bear in mind that SOME characters are there to kill you or otherwise impede your progress, so try to avoid the nasty ones if at all possible - sometimes you are allowed just ONE move to run away! TALKING may help but don't bank on it!!

Be prepared for random appearances - SAVE GAME often - these usually occur within a set area of your adventure so mark the boxes within that area with a small asterisk and add a brief note of the situation on your map sheet. There is usually a way around these characters but you need to find the necessary items or learn spells/words to overcome them. Avoiding them temporarily gives you time to search and think!

continued overleaf

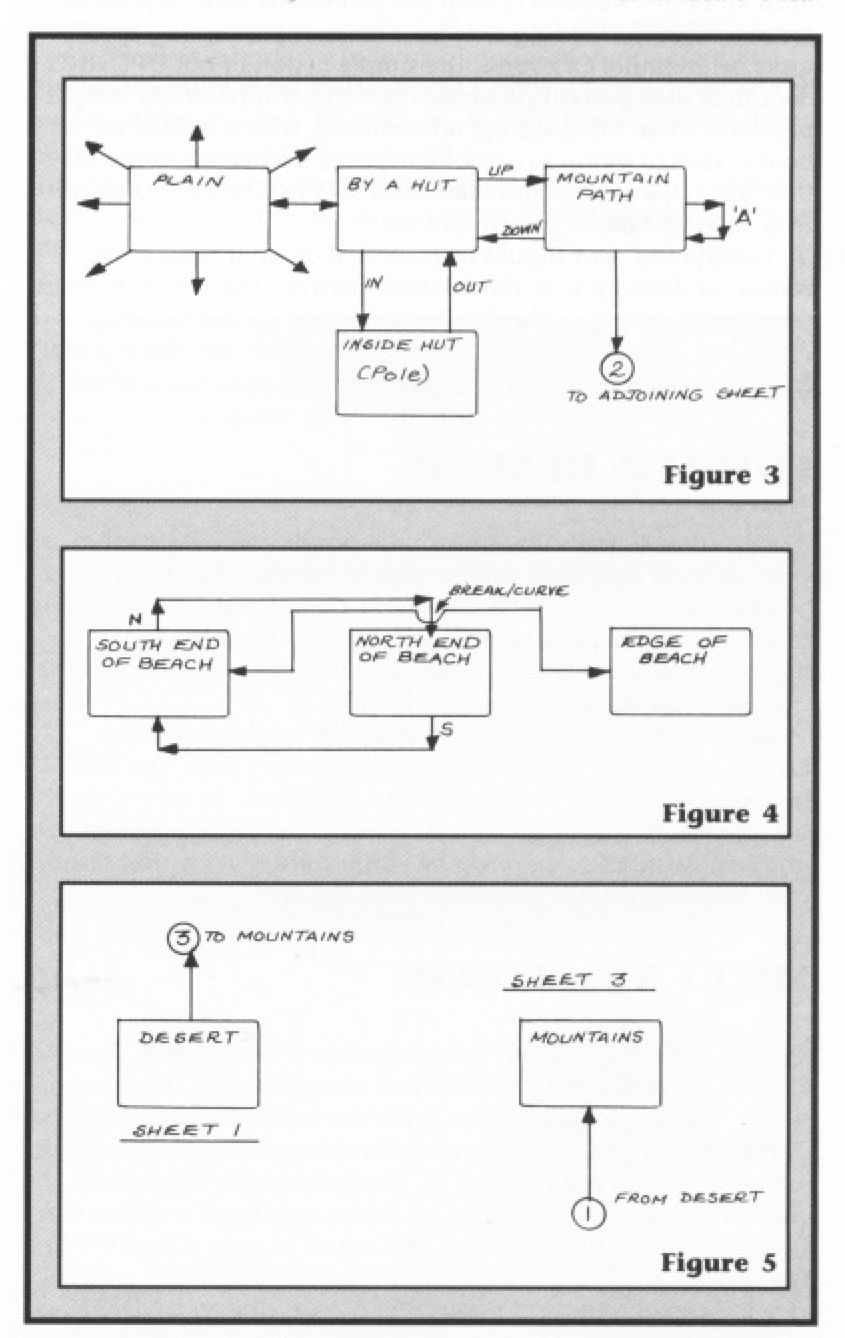


Figure 3

Figure 4

Figure 5

MAPPING continued

AVAILABLE EXITS

Indicate EVERY possible exit from each location: NORTH - SOUTH - EAST - WEST - NORTHWEST - NORTHEAST - SOUTH-WEST - SOUTHEAST - IN - OUT - UP and DOWN as shown in Figure 3. After entering a directional command, try moving in the OPPOSITE direction to ensure that you return to the previous location - if you don't however, carefully note where this move takes you. It may be the start of a maze (see Maze mapping notes) or simply that you only appear to move whereas you really stay put in your original location - the 'O.K.' response from the program doesn't help you in this respect! Check the location description carefully and also the exit options and if this is so then mark it as at 'A' in Figure 3. A number of adventures have deliberate ONE-WAY routes so be careful! You should also be aware of the inescapable dead-end trap - again, SAVE your game often!!

If you reach the edge of a sheet be sure to show also where your current map is continued on the next sheet.

CONDITIONAL COMMANDS

You may be prevented from progressing in a particular direction until you have satisfied certain pre-conditions such as possessing certain objects, attaining a defined score or performing specific tasks beforehand. Of course, the simple action of not OPENING a door may also prevent progress! I remember a relatively simple problem, when I first started adventuring, which baffled me for hours - that of trying to actually move in a direction when all that was required was the command 'GO DOOR' or 'GO BUILDING' ... Scott Adams you caught me!!

A 'conditional' exit should be indicated on your map by a broken or dotted line to differentiate between these and 'normal' directional exits. You should also show any precise wording necessary, e.g. 'GO ENTRANCE', 'BOARD SHIP', etc. Believe me, it is all too easy to miss this important point come next time!

COMPASS HEADING

Your master sheets should include a simple compass symbol and your location directions should strictly comply with this. It may be necessary, to economise on space or avoid using a completely fresh sheet for just one location, to disobey this rule slightly. In this case always start your directional line correctly and add the true direction letter, as shown in Figure 4.

A small problem may arise by using this method, where a further location is, to use the example, directly East. You can by-pass the location you have drawn as shown. To keep things tidy always 'break/curve' a route when it crosses the path of another. A complex map can be easily condensed within a small area this way yet still remain clear to the eye.

SHEET NUMBERING

Simply number (or letter) your map sheets in sequence. Show EXACTLY where a map route leaves one sheet and, more importantly, where it joins another. If you are taken to a distant part of the adventure as you move off the current sheet then indicate which sheet you will progress to. Similarly on the 'new' sheet show where you came from ... all this is very basic stuff but can save hours of frustration when you return to your adventure in a few days!!

Try to keep all directional routes in a 'true' line, e.g. NORTH as in Figure 5.

RANDOM ELEMENTS

All the previous map-making comments will apply to approximately 80% of adventure games, however you will also encounter, sooner or later, the infamous 'random-chance' element!

A good example of this type of adventure is 'Worm In Paradise' (Level 9) which can be extremely confusing, even when you believe that you have mastered the Eden Transport System. This is because certain elements of this adventure are randomly generated upon EACH loading!! This gives a different set of conditions each time you play, in certain locations of the game.

BASIC MAZES

The best way to cover this aspect of adventure mapping is to use what is commonly referred to as 'Standard Procedure' referred tyo in Figures 6 to 11. Bear in mind that some mazes may be randomly generated and are therefore impossible to map accurately!

So, what is a MAZE? Essentially it is a group of locations incorporated into an adventure in a usually successful attempt to confuse the player's sense of direction and current whereabouts! Sometimes you may be lucky and discover that movement in the opposite direction to your last move places you exactly where you were previously. This type is, therefore, not so much a maze as a set of similarly described locations.

The true maze places you in a completely different location when you reverse your previous directional command, sometimes quite a considerable distance from where you thought you were! Once you have established where a maze was first encountered, go through your game once more and SAVE just prior to that stage, taking careful stock of your current inventory.

The simplest way to successfully and accurately map a standard maze is to DROP one of your 'carried' (or 'worn') items in each location as you progress, collecting them again by following your new map when you have completed the maze section of your adventure.

You may only be carrying four or five items at this stage but,

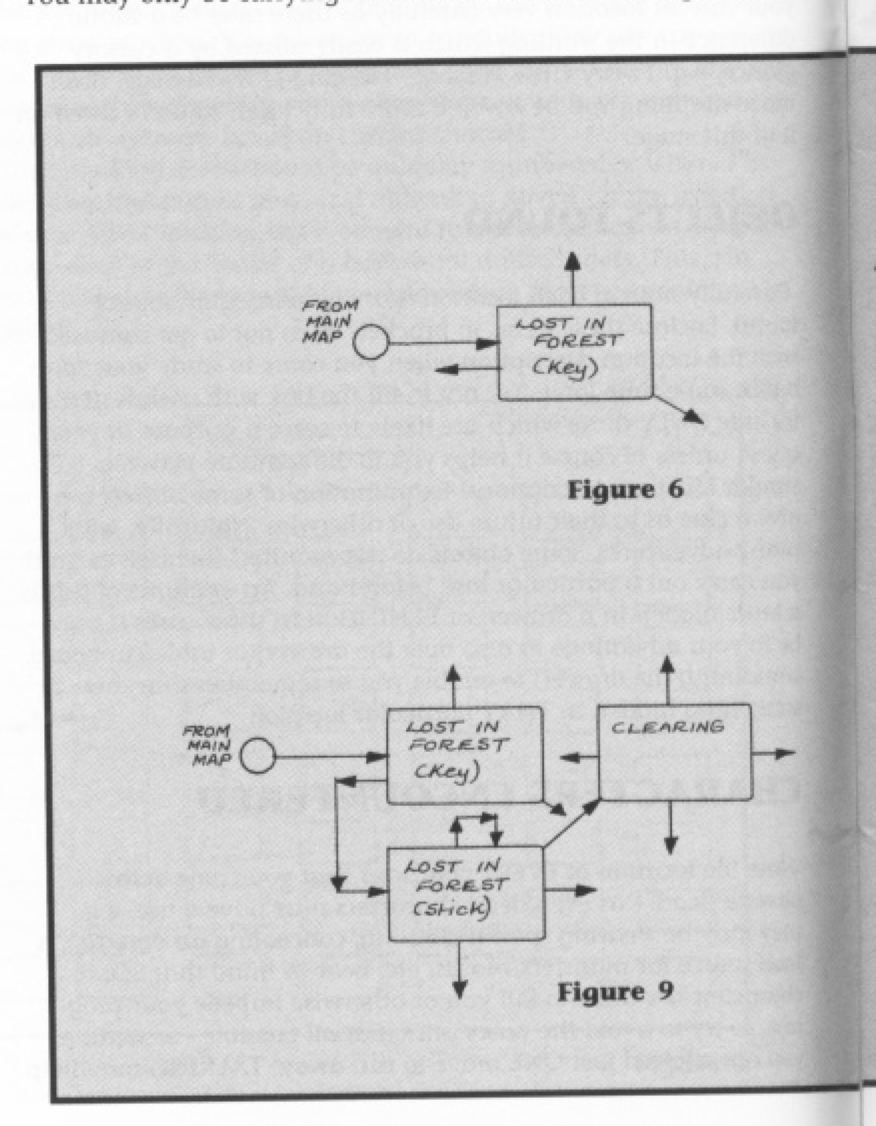


Figure 6

Figure 9

usually, this is enough. Be especially careful to RETAIN YOUR LAMP as it may be dark in there and if it isn't then maybe night will fall while you're in there! Also, any fragile objects may need some form of 'cushion' before you drop them to prevent accidental breakage.

Let us assume a hypothetical situation. You are carrying a sword, stick, knife, key and lamp. You are also wearing a cloak. The maze consists of a (so far) unknown number of locations. When you reach your first maze location DROP the KEY and write the location description in your location box - pencilling in the key for now. Indicate ALL the visible exits from this location (your first maze location should now be as shown in Figure 6). Incidentally, this 'maze section' of your map should be constructed on a SEPARATE sheet of paper to avoid confusion!

Now, leaving the KEY where it is, move WEST. Oh, great! We're lost!! Or so it seems. Note the description of this new location and we find it to be exactly the same, but without a key. Draw in this new location and note the visible exits. (Your map should now conform to Figure 7). Now DROP the STICK and write it down - again in pencil - in this new location. You do not need to know the exits as this mapping method works either way - we simply try to move in every possible direction, indicated or otherwise, until successful!

Assuming that you cannot move West, let's try NORTH. If you see a KEY then simply draw your directional line to join the first location. For the purpose of this example we see not a key but a STICK! You really haven't moved out of the location at all!! Show this fact, leaving the stick where it is, on your maze map and try another exit. (Figure 8).

Now try NORTHEAST and you find a convenient Clearing. This, so far, is a completely different location description and there is no need in this case to drop an item in this location. But, you should STILL note all the visible exits. (Figure 9).

Continue around the maze using the adopted procedure until ALL maze locations have been shown and ALL possible directions followed. Our hypothetical maze now conforms to Figure 10. Looks quite complicated doesn't it? But study it closely. It really is quite simple! You see, you could have been wandering around for quite a while - getting hungry and tired, lamp running low - yet there are only four 'Lost In Forest' locations!!

Now follow your new map and collect your dropped items, erasing the pencilled notes, and continue with your quest.

I only wish every maze situation was as simple as this - sometimes it appears more daunting than it actually is! Although not an Atari adventure, the 'Maze Of Sodden Hillocks' (Sic!) contained in 'The Shadows Of Mordor' (Melbourne House) contains just THREE LOCATIONS!! (Figure 11). You can see that the majority of directional commands do not actually take you anywhere! As a point of interest this particular maze was mapped by adopting the standard procedure, before the necessary action was taken to move the logs, whilst the 'dark' mazes in this same adventure were similarly tackled but with the various permutations of matches and crystal to provide light!

In the main, mazes are extremely difficult to map, with other factors to contend with, such as:

(a) Limited number of moves
(b) Darkness
(c) Randomly generated directions - remember the Bedquilt in 'Colossal'?!
(d) Your dropped objects being covered by mist or smoke- ...even washed away!!

NOW SOLVE YOUR OWN ADVENTURES!

So there you have a personal view on getting to grips with adventure mapping. I would stress that this article is NOT intended to teach you all you need to know about adventure mapping, it is merely a collation of my own personal methods and offered as a basis for individual adaptation according to needs. Hopefully these methods will help you to reach the end of an adventure you may be stuck on, there is nothing better than having solved a good hard adventure!

Finally, remember your adventure map is only as good as the next time you need to use it, so compile it with care and attention.

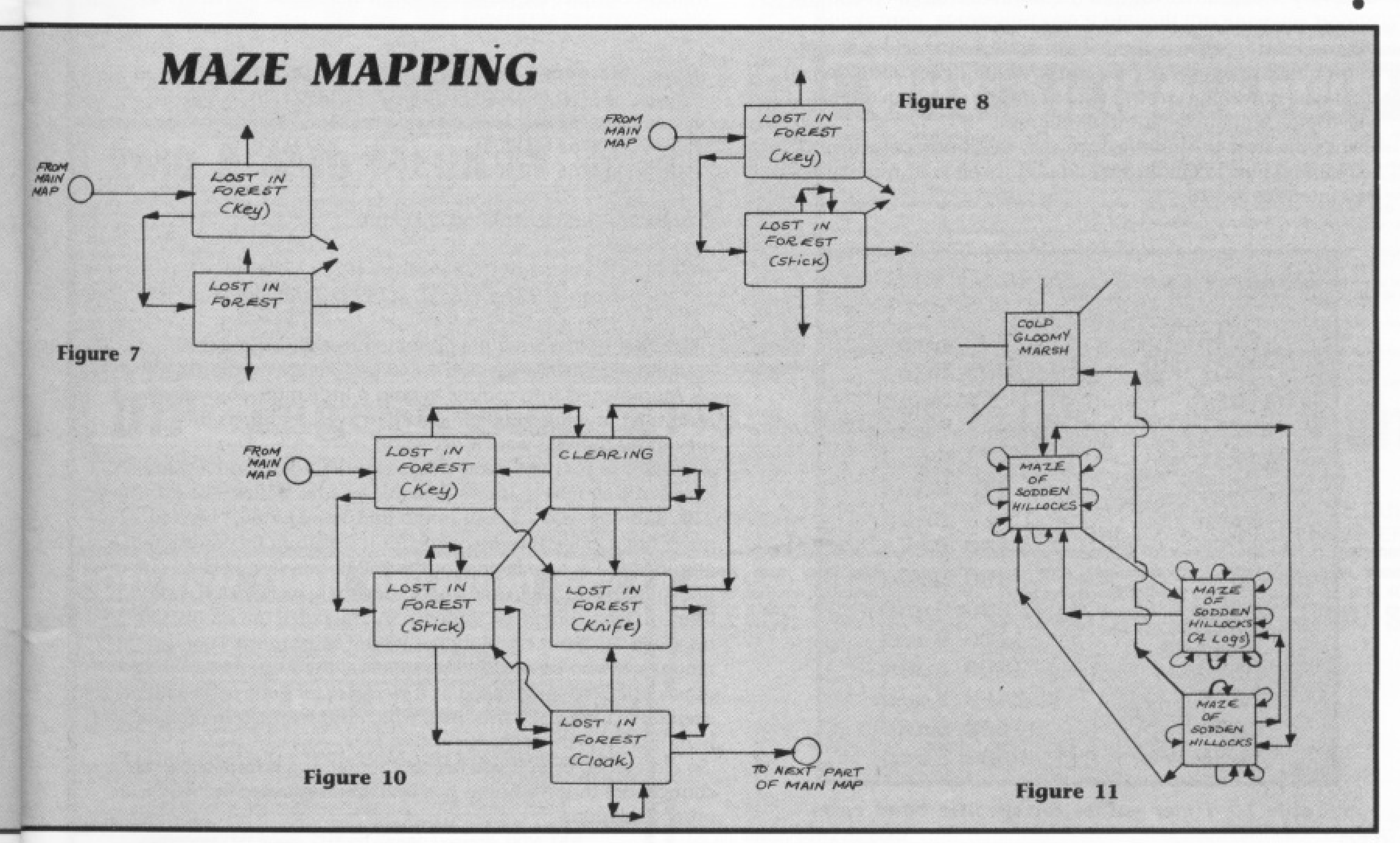


Figure 7

Figure 8

Figure 10

Figure 11

850 Split Baud Rates With Any Atari RS232 Interface

by Geoff McHugh

Did you know that it is possible, despite what the 'experts' say, to obtain split baud rates on the Atari 850 or similar RS232 interface - including P:R connection? No? Neither did I, until very recently.

It all started when I received a copy of the source code for the RS232 handler which I use with my Datatari interface. While I was looking through the listing, it dawned on me that it should be possible to get the handler to operate at split rates (which it was not originally intended to do) by using a few direct POKEs from within a terminal program. Since at the time the expert opinion was that the 850 interface was totally incapable of split baud rates, I naturally assumed that this would only work with the Datatari interface, so I constructed some program patches for two versions of the Amodem terminal program (Amodem4 and Amodem7), labelled them as being for use with the Datatari interface and the RHAND RS232 handler (which I use) and uploaded them to my favourite BBS, The ARK. I was naturally curious as to whether this would work with the 850 interface, so I asked the sysop to try it out, and thought no more about it, until I noticed a message from a fellow user to the sysop claiming that the patched program had worked with his P:R Connection (supposedly more-or-less identical to the 850 interface).

I was, of course, very interested by this, so I asked the sysop if he would try it with his 850 interface. Imagine my surprise when I next logged-on to find that my patch was being hailed as the greatest discovery in Atari 8-bit communications! Apparently, the patch had worked on the 850, and the sysop (James Bastable) was quite understandably excited. I hardly need to tell you that I was just as excited as him! The repercussions of this discovery should strike far into the world of Atari 8-bit comms, almost everyone still thought it was impossible, until shown otherwise and, as far as I know, even Atari themselves do not know about it, otherwise they surely would have capitalised on it! Maybe now the Atari will benefit from a widely available ViewData compatible terminal program.

That's the story behind the discovery, so I'll now get down to explaining how to obtain split baud rates on your humble Atari 850 Interface Module!

Timer Value	Baud Rate
2976	300 Baud
19661	45.5 Baud
17891	50 Baud
15727	56.875 Baud
11925	75 Baud
8128	110 Baud
6646	134.5 Baud
5958	150 Baud
2976	300 Baud
1484	600 Baud
739	1200 Baud
490	1800 Baud
366	2400 Baud
179	4800 Baud
86	9600 Baud

Table 1 - Timer values for specific baud rates

Ok, where should I start? I suppose a very basic explanation of what happens in your interface handler is as good as any. The handler, basically, sets up the baud rates using the POKEY hardware timers, which are stored in the Audio Frequency registers AUDF1 - AUDF4 (locations $D200, $D202, $D204, $D206).

I discovered that AUDF1 and AUDF2 store the timer value which represents the transmitting baud rate (i.e. the speed at which your Atari sends data out), and that AUDF3 and AUDF4 store the timer value which represents the receiving baud rate (i.e. the speed at which your Atari reads data in).

The timer values are stored as two-byte integers (i.e. have a value of between 0 and 65535) and the values corresponding to each baud rate are shown in Table 1.

Let's take an example. Say you wanted 1200/75 split baud rates to access your favourite Bulletin Board (obviously The ARK!). So, your transmission speed is 75 baud, and your receiving speed is 1200 baud. Look at the table, the timer value corresponding to 75 baud is 11925, and the timer value corresponding to 1200 baud is 739. Set your other parameters, parity, translation mode, word length, etc. first and when you use the XIO #36 command (or if you are using m/c then when you call CIO with the cmdno 36) treat the baud value as 0 (300 baud - this is simply for convenience). After you have entered CONCURRENT I/O mode (XIO #40) then POKE (or equivalent, depending on your programming language) the timer values into the POKEY registers AUDF1-4.

In this example, the addresses and values to be stored are as follows:

Memory Location	Byte Stored
53760 ($D200)	149 ($95)
53762 ($D202)	46 ($2E)
53764 ($D204)	227 ($E3)
53766 ($D206)	2 ($02)

The values can be explained like this:

Tx rate: 149 + (256*49) = 11925 (75 baud)
Rx rate: 227 + (256*2) = 739 (1200 baud)

That's about it! I am quite proud to have discovered this seemingly unknown use of the 850 and I hope that it will allow all Atari owners into comms to gain a little more enjoyment from their favourite Bulletin Board or even try others they previously thought were inaccessible.

I would like to thank some people for their help and inspiration. First of all, thanks to James Bastable and his Bulletin Board, The ARK. If it were not for both James and The ARK BBS, I would never have made this discovery, for it was from this source that I obtained the Source listing for the RS232 handler. I would also like to thank an ARK user who I know only as NITRAM (or Martin), who convinced James to try the patch out on his 850 interface. Last, but certainly not least, I must thank Page 6 magazine, who have REALLY supported the Atari 8-bits, when others have only pretended. If it were not for Page 6, I would not even have found The ARK BBS, which has featured so prominently in this breakthrough.

So remember, even if you are told something is impossible, the chances are that it's not as has been demonstrated in PAGE 6 on other occassions! •

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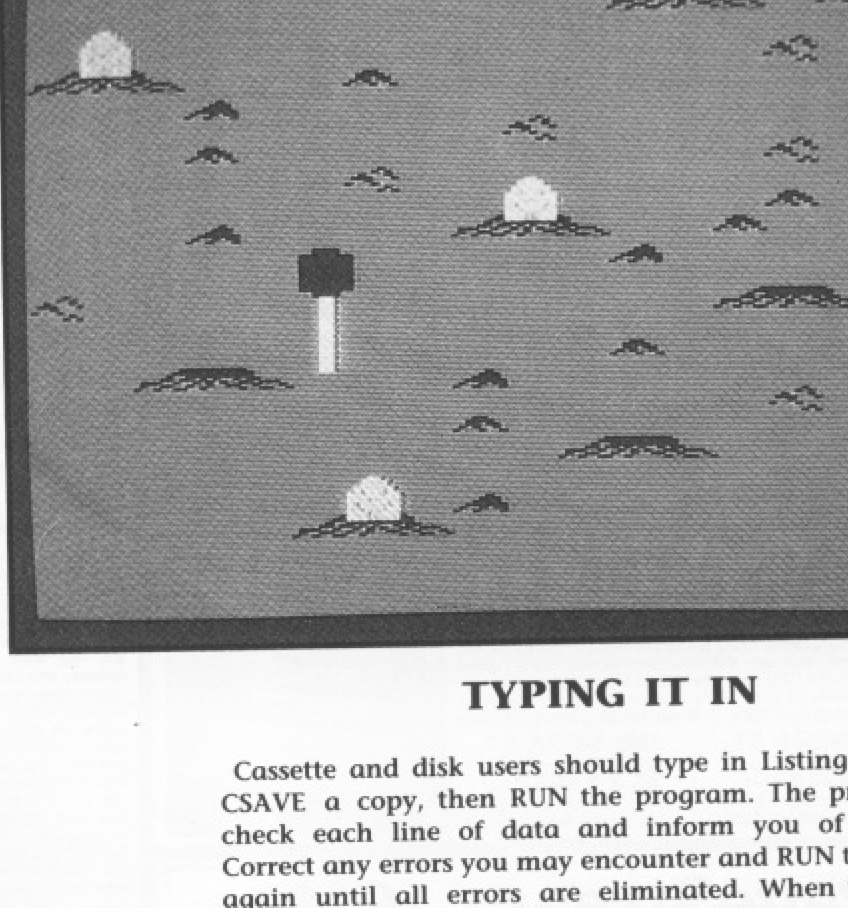
HEADBANGER

If you have been up to Blackpool lately, or other seaside resort, you might recognise Headbanger. The object of the game is simply to knock down the funny heads as they pop up from the craters. You can't keep them down for long though and they'll pop up for more again and again until your time runs out or your joystick breaks. To get more time knock more down.

To clobber a funny head use your joystick to position the club to the right of it with the base of the shaft about the same level as the top of the head. Then press the button to drop the club head directly on the top of the funny head. If you get a direct hit the head will pop in. If however the club is too low or too close or too far away it will be a miss. With a little practice you'll get it right - and practice is one thing you will get as they pop out and stick their tongues out at you!

Game play starts as soon as the game loads. Subsequent games are started by pressing the joystick button.

by Bill Halsall



TYPING IT IN

Cassette and disk users should type in Listing 1, SAVE or CSAVE a copy, then RUN the program. The program will check each line of data and inform you of any errors. Correct any errors you may encounter and RUN the program again until all errors are eliminated. When this is done answer the cassette/disk questions accordingly to create a boot tape or binary disk file.

Cassette users should load the boot tape created by firstly removing all cartridges and then turning on the computer while holding down the START key (XL and XE owners should hold down OPTION as well). Press RETURN and the tape will load and run automatically.

Disk users should type in Listing 2 and save it on the same disk as the binary file created by Listing 1. RUN the Listing 2 program with the disk in the drive and the game will load and run automatically.

A special note for disk users - if any other programs have been used prior to Listing 2 being loaded it is recommended that the computer be turned off and on again before the program is run to ensure that the game isn't corrupted by any data left in memory.

HEADBANGER

```
WO 1 REM ******************************
IH 2 REM *          HEADBANGER        *
ZC 3 REM *                            *
UH 4 REM *       by Bill Halsall      *
SR 5 REM * -------------------------- *
KC 6 REM * PAGE 6 MAGAZINE - ENGLAND  *
WU 7 REM ******************************
NO 9 REM
NY 10 REM BOOT TAPE/OBJ CODE FILE MAKER
          BASED ON PROGRAM FROM ANALOG
AZ 20 REM
SR 44 DIM DAT$(100),HEX(22):RESTORE 46:FO
   R X=0 TO 22:READ N:HEX(X)=N:NEXT X:PAS
   S=0:TOTAL=0:TRAP 62:? "CHECKING DATA"
CN 45 LINE=99
EL 46 DATA 0,1,2,3,4,5,6,7,8,9,0,0,0,0,0,
   0,0,10,11,12,13,14,15
BW 48 LINE=LINE+1:? LINE:READ DAT$:IF LEN
   (DAT$)<>90 THEN 76
BL 50 DATLIN=PEEK(183)+PEEK(184)*256:IF D
   ATLIN<>LINE THEN ? "MISSING";CHR$(253)
   :END
MA 52 FOR X=1 TO 89 STEP 2:D1=ASC(DAT$(X,
   X))-48:D2=ASC(DAT$(X+1,X+1))-48:BYTE=H
   EX(D1)*16+HEX(D2)
GR 54 IF PASS THEN PUT #1,BYTE:NEXT X:REA
   D CHKSUM:GOTO 48
BO 56 TOTAL=TOTAL+BYTE:IF TOTAL>999 THEN
   TOTAL=TOTAL-1000
TS 58 NEXT X:READ CHKSUM:IF TOTAL<>CHKSUM
    THEN 76
VQ 60 GOTO 48
TQ 62 IF PEEK(195)<>6 THEN ? "ERROR ";PEE
   K(195);CHR$(253):END
VN 64 IF PASS THEN FOR X=1 TO 37:PUT #1,0
   :NEXT X:CLOSE #1:END
PF 66 ? "(D)ISC OR (T)APE":GOSUB 80:IF K=
   ASC("D") THEN 70
RD 68 ? "READY CASSETTE AND PRESS RETURN"
   :OPEN #1,8,128,"C:":GOTO 74
IF 70 ? "READY DISC AND PRESS RETURN":GOS
   UB 80:IF K<>155 THEN 70
GR 72 OPEN #1,8,0,"D:HEADBANG.OBJ"
HW 74 PASS=1:LINE=99:RESTORE 100:TRAP 62:
   GOTO 48
PT 76 ? "BAD DATA";CHR$(253):END
ZM 79 REM ***GET KEY ROUTINE***
GO 80 CLOSE #1:OPEN #1,4,0,"K:":GET #1,K:
   CLOSE #1:RETURN
YM 100 DATA 000E00202820A9008D2F02A93C8D0
   2D3A9008DE702850EA9388DE802850FA928850
   AA920850B18604CA1260000,590
NY 101 DATA 00000000000000000000000103040
   D724C9300FFFFFFA95493200080C0C060DC229
   90000183C36528900000000,517
IM 102 DATA 040E1E3F4B91040A2271108802050
   0183C3C7E5ADBFFE7BDBDDBE7FFFFFF0000000
   000242400184242224181818,162
PA 103 DATA 00010101010101010101010101010
   10101010101010101010808080808080804040
   40404040202020202020101,272
RY 104 DATA 01010101202020303010101018080
   00C0C040406060202030301010100000000000
   0008080C040602030101808,357
LW 105 DATA 0C040602030101000000000000000
   000000000000000000000000000FFFFFF00000
   00000000000000000000000,151
UW 106 DATA 00000030307878787878787878787
   07878303000000000000000000000000000000
   00028252124222212E272532,168
GC 107 DATA 00303225333300223534342F2E003
   42F00302C213900B3A3AFB2A51010103032253
   33300223534342F2E00342F,498
RX 108 DATA 00302C2139223900222922C2C00282
   12C33212C2C00111918177070C2312146003A0
   68606068606068606068606,524
UK 109 DATA 06860606860606860606064181214
   88A48A6C6BDBE218D02D08D03D0BDC6218D15D
   0E886C668AA68409038C078,270
TB 110 DATA A0488860429A4A0CB470341AAD000
   6F018CE0006AD00061869A08D04D28D05D2C9A
   0D005A9108D0106AD0106F0,571
WM 111 DATA 1ACE0106AD01061869208D04D2698
   08D05D2C9A0D005A9108D0206AD0206F01DA9A
   68D05D2CE0206AD02061869,668
CA 112 DATA 108D04D2C910D008A9008D04D28D0
   5D2AD0506F01DA9A68D03D2CE0506AD0506186
   9108D02D2C910D008A9008D,136
LS 113 DATA F2AA8D03D2AD0306F01CCE0306A90
   08D00D2A9088D01D2AD0306D00AA9088D0406A
   9808D00D2AD0406F00FCE04,640
LA 114 DATA 06AD04060A8D01D2D0038D00D2A90
   085C6A9A38D0002A9218D01024C62E420A422A
   2008A9D003C9D003DE8D0F7,128
UR 115 DATA 60A2008A9D003E9D003FE8D0F760A
   9008D2F02A9388D07D48DF402A200BD00E09D0
   038BD00E19D0039E8D0F1BD,363
TS 116 DATA 30209D0038E8E038D0F5A9028D1DD
   0A9018D08D08D09D08D6F02A9008D08D2A9038
   D0FD2A9818D3002A9218D31,256
EW 117 DATA 02A900AA9D003A9DE03AE8D0F7A90
   4204F23A905204F23A906204F23A901A000206
   023A902A001206023A903A0,218
WF 118 DATA 02206023A200BD79239DC002E8E00
   9D0F5A93A8D2F02A0CEA221A907205CE4A9C08
   D0ED460A200AC0AD299003A,254
LH 119 DATA 99E13AE8E005D0F26099333A99643
   A99B13A99E43A99253B99563B999A3B99D13B6
   0001E484200007A0606A900,998
FF 120 DATA AA95B0E8E011D0F9851385148D060
   6A9108D56218D57218D5821209422A9D285C3A
   9C085C420BA23A200BD6D21,206
KD 121 DATA 9D3C21E8E014D0F560AE0606BD0A2
   485C9BD0F2485CAA5C338FD142485C5A5C485C
   88D01D0187D192485C78D00,593
CF 122 DATA D020F6234CE523A4C5A200BD00219
   9003CC8E8E030D0F460A5C338E918AAA000B1C
   99D003DE8C8C018D0F56080,596
AM 123 DATA A0B8D0E8202020202020393730291A0
   9FFFBF8F6A5C0D02DAD0AD2A201184AB005E8E
   004D0F7AD0AD2098085C0A9,160
QJ 124 DATA 108D0506AD0AD22907A8A5C099B80
   0A90F99B000CAD0ED60BD8D2485CB85CDA93E8
   5CCA93F85CEA91038E5C285,863
YR 125 DATA C1A0009891CB91CDC8C4C2D0F7A5C
   B1865C285CB85CDA000B9782091CBB9682091C
   DC8C4C1D0F160223A526A82,532
FA 126 DATA 9AB2CAA200B5B085C2F00CB5B8F00
   838E9109003205024E8E008D0E960A200B5B8F
   00EA91038F5B89007F00585,358
GH 127 DATA C2205024E8E008D0E960A5C0C9C8F
   005C980F00160AD0AD22907AAB5B8D0F6A90F9
   5B0AD0AD2297F092095B8A9,413
EU 128 DATA 108D050660A5CFD027AD7802C90FF
   020C90EF020C906F019C907F01BC905F01AC90
   DF019C909F018C90BF01DC9,620
TY 129 DATA 0AF0166020382 54C66254C3825203
   8254C8225204F254C82252066254C4F25A6C4E
   0D2F010E8E886C48E01D0A6,982
JZ 130 DATA C7E8E886C78E00D060A6C4E010F01
   0CACA86C48E01D0A6C7CACA86C78E00D060A6C
   3E032F015CACA86C3A200BD,895
SU 131 DATA 023C9D003CBD023D9D003DE8D0F16
   0A6C3E0FAF015E8E886C3A2FDBD003C9D023CB
   D003D9D023DCAD0F160A200,572
CR 132 DATA B5B0F002D6B0B5B8F002D6B8E8E00
   8D0EFA5C0F002C6C060A5CFD010AD8402D00B8
   54DA90F85CFA9008D030660,841
UZ 133 DATA A5CFF022C6CFA5CFC907F0234AB01
   7AABDF4258D0606AD06068D1ED0C904D003209
   72220BA2360000102030403,372
PP 134 DATA 0201AD0CD02908F02AA200A5C338F
   D2E26901BBD362638E5C39013A5C438FD3E269
   00BBD462638E5C490034C4E,113
DD 135 DATA 26E8E008D0D86019385 36B839BB3C
   B3A526A829AB2CAE2943CC47CA44C8C649C44C
   C84AC54946CA9108D0006A9,794
AD 136 DATA 0495B8A203CAFE5621BD5621C91AD
   00FA9109D5621C613C613C613E000D0E660A90
   0AA9D00D2E8E008D0F8A200,287
CA 137 DATA BD59219D3C21E8E014D0F5A9FF8D1
   C02AD1C02D0FBAD8402D0FBAD8402F0FB6020B
   122208223A9018D1C02201E,537
UP 138 DATA 2420952420AF2420C924209E2520F
   12420F12420B82520CD25AD1C02D0FBA513C91
   4D0D52074264CA426000000,626
```

Listing 1 - Main Game

```
XB 20 REM LOAD AND RUN ROUTINE FOR
          HEADBANGER
EU 24 OPEN #1,4,0,"D:HEADBANG.OBJ"
OL 25 POKE 850,7:POKE 852,0:POKE 853,32:P
   OKE 856,255:POKE 857,255
TB 28 X=USR(ADR("hhh□LV□"),16)
BO 30 CLOSE #1:X=USR(8232)
```

Listing 2 - Disk Loader



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INGRID'S BACK

and John Sweeney's fool enough to take her on again!

Ingrid's Back is a text adventure (with excellent pictures on the ST) in which you play the part of a rather accident-prone Gnome known as Ingrid Bottomlow, who will be no stranger to those of you who have played Gnome Ranger! The adventure is in the standard Level 9 format - you enter your commands in English through the keyboard telling the computer what you want Ingrid to attempt, and the screen displays lots of text telling you what happened.

To be slightly more accurate, Ingrid's Back is actually THREE text adventures. They all take place in her village of Little Moaning, and follow on from one another to make a single story. Each can be played independently (and, more important if you are cassette-based, can be loaded independently!) which is very useful if you happen to be stuck in one part of the game.

The plot involves Jasper Quickbuck, the money-grabbing lord of Ridley's Manor, and his plans to steamroll the gnome-belt village for an estate of yuppie homes. In Part 1 Ingrid, aided and abetted by her trusty dog Flopsy, has to find and persuade all of the locals to sign a petition against the planned eviction. Despite her success at this, Jasper continues with his steam-rolling and Part 2 starts with a superb tribute to/parody of the opening steam-roller sequence of the Hitch-Hiker's Guide to the Galaxy, complete with a hangover and flying bricks (turnips in this case!). Once you succeed in stopping the steam-roller you will find yourself being chased by seven trolls. Fortunately Level 9 have been kind enough to provide you with eight traps, so you don't actually have to solve all the puzzles to finish the game.

In the grand finale (better known as Part 3) Ingrid has to explore Jasper's house and escape with enough proof of Jasper's evil ways to prevent any further nastiness on his part. This time Ingrid gets help from her cousin Daisy, unfortunately she is not as bright as she might be and you are probably better off with the dog!

LEVEL 9's CONTINUING ATARI SUPPORT

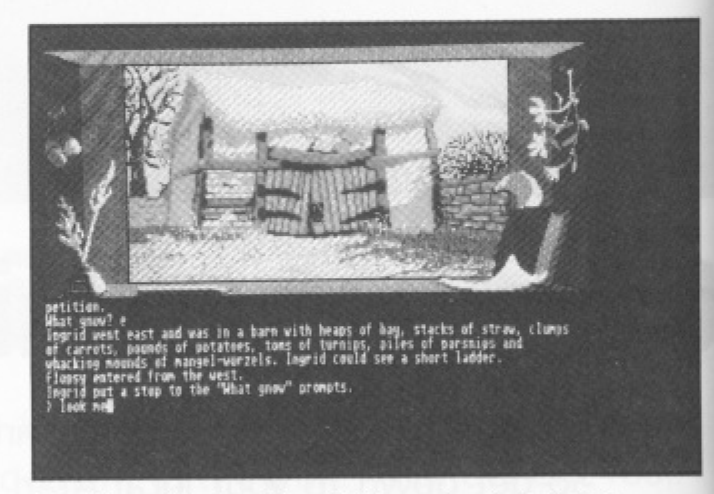
In creating a game of this nature, one of the first decisions which the developers need to make is: what is their prime target environment? Many companies are now targetting on the 16 bit machines and if they bother to produce an 8-bit version at all it may only be on disk and may be so degraded (e.g. response time) that it is unplayable. Naturally we all want progress, and those who can afford the new machines certainly deserve to get bigger and better games - it will be even better when the majority of the developers actually work out how to USE these new facilities! - but there are lots of people out there with 8-bit machines, and there is still a lot of potential in those machines.

Level 9 have staunchly continued to support the 8-bit cassette systems while using every technique at their disposal to achieve a sophistication which not long ago would have been deemed impossible on such a machine. The breaking down of each game into three parts may seem a little artificial at times, but it frees up memory which enables Level 9 to provide far superior games. The parser (the bit that tries to work out the meaning of your requests - idiotic as they may be!) is a little limited compared to what can be achieved on a 512K 16-bit machine, and the vocabulary, squeezed into a tiny part of a 64K memory, is obviously rather smaller than can be achieved with a 360K disk! Once you accept these limitations however, and the occasional frustration they cause, Level 9's parser and vocabulary are more than adequate to provide a very enjoyable game. In fact, once you accustom yourself to the limitations, you may find less frustration with this kind of parser than with some of the supposedly clever ones which pretend to understand everything you enter - sometimes with disastrous results!

LOTS OF GOODIES

As well as the standard features, Level 9 have also implemented lots of goodies, even on the 8-bit machines, to make the game more fun to play: UNDO takes you back a step if you did something catastrophic; RAM SAVE allows you to save in memory - a boon for cassette users; EXITS ON causes all accessible exits to be displayed at each location; RUN TO xxxx takes you to remote locations at high speed; and so on.

Ingrid's Back is great fun to play, there are plenty of places you can get to easily and humour at every turn, not just in the descriptions of the gnomes and the locations but also in the antics of the characters as they carry on their own little lives around you. Little things like the amusing responses you get when you ring all the



Graphics with the ST - 8 bit version is text only

'S

ACK

numbers in Jasper filofax show the care and attention to detail which Level 9 have put into the storyline. Unfortunately that care does not always seem to extend to the program itself, on a number of occasions I tried something straightforward (e.g. CLIMB LADDER or FLOPSY,GO NORTH) and it was rejected or misinterpreted, but when I reloaded the game and tried again it worked! Maybe I played for too long at one sitting? And I wasted a good half hour asking gnomes to sign my petition when in fact all you have to do is show it to them.

I find sequences like the following extremely frustrating

> ZILCH, SIGN THE PETITION
Zilch says he is far too busy to do that. >
SHOW PETITION TO ZILCH
Zilch gladly signs your petition.

NOT SO CHALLENGING?

Ingrid's Back seemed less of a challenge than some of Level 9's earlier adventures; it was more like playing through a story - as long as you explore everywhere, examine everything and make notes of all the clues there don't seem to be all that many real challenges. Still with three separate games covering over 140 locations you will find plenty to do and a number of the problems really are excellent. It is nicely packaged, complete with the old 'L9' pattern all round the box now that Level 9 are doing their own distribution again, including another twenty pages of humour in the form of Ingrid's diary - The Second Gnettlefield Journal. If you can stand all the puns you will definitely get many hours worth of enjoyment.

The extra money on the ST gets you pictures (mono or colour) to complement the story, recall and editing of previous commands, multiple UNDOs, optional larger text (for TV users) and lots of extra text, most of it hilarious.

INGRID'S BACK
LEVEL 9
ST £19.95 (with pictures)
XL/XE £14.95 (Cassette or Disk - text only)

LANCELOT

John R. Barnsley takes a look at the new adventure from Level 9 available on both ST and XL/XE machines

Lancelot is, as you would probably expect, closely based upon and around that most famous of the Arthurian Knights from the legends of the classic book - 'Mort D'Arthur'. The language and style of the adventure has been cleverly adapted to suit the latterday 20th century, and certain elements of the game itself have been 'created' (made up!). Thankfully, these elements are few with only slight changes made from the original legend, such as the initial meeting with King Arthur, Guinevere's plight on the stake and how to kill Garlon, the invisible Knight.

I would think changes to the original story have been made to ensure initial involvement in the game, to avoid repetitiveness and to make a decent puzzle out of scenarios that could otherwise have been somewhat boring when implemented in an adventure! Having said that, it does adhere very closely to the legend - and it's a refreshing change to view events from Lancelot's point of view instead of Arthur's or Merlin's. Lancelot leads a fuller and more active life than some of the purer, more virtuous knights!!

The adventure is divided into three parts - 'CAMELOT', 'LOGRIS' and 'THE QUEST FOR THE HOLY GRAIL'. As you would expect, Part One is set in and around Camelot, while Part Two is set further afield and involves the rescue of Knights - with more multi-player aspects. Part Three is the familiar Quest for that Grail! The player can start directly with the Grail quest but to enter Part Two you need to walk around and explore for a while.

Puzzles and problems are scattered fairly evenly and are very imaginative in some places. The gameplay of 'Lancelot' can best be described as 'very active' and takes place over a large map area, here the use of the now standard GO TO/RUN TO command will prove invaluable and speeds up the game considerably. Another couple of useful 'standard' features of Level 9 games now are the OOPS and RAMSAVE commands - well used, I can tell you!!

Whilst the XL/XE version is text only, the ST has added graphics. These are a strange mixture - from colourful and pretty to a couple of areas where the pictures seem a bit amateurish - perhaps that's not entirely fair a description, but it DOES seem that some graphics have been produced by different artists! However, as with all Level 9 masterpieces, it's the text that counts and in this particular case, we're in for a treat! The language takes you back to the days of yore, and atmosphere oozes from the screen! The text has been well adapted from the original book and, on an ST, can be changed to a larger type-face for players who need it - reading through the playing guide informs you that this 'text change' feature can also be applied to the earlier two adventures: Knight Orc and Gnome Ranger, so that's an added bonus!

The number of non-player characters is moderate, but they are controlled - unlike the likes of those infuriating characters in Knight Orc! Each character has it's own task and is blessed with reasonable intelligence.

The paperwork accompanying the game, offers the usual availability of the Level 9 Cluesheet - provided you append the little coupon to your SAE. The really BIG bonus with 'Lancelot' has to be the opportunity for purchasers to to take part in a national search for a real HOLY GRAIL - in SOLID SILVER - and valued at FIVE THOUSANDS POUNDS!!! The adventure is used as a basis for the clues offered in the real quest and full details are included in the packaging together with an ancient map of England and France.

If you haven't bought 'Lancelot' yet, go and do so - NOW!!

LANCELOT - Mandarin/Level 9
Available for ST and XL/XE
ST with graphics £19.95
XL/XE text only £14.95

Version reviewed - ST



Jeff Minter creates a new art form

reviewed by
John S Davison

MERAK - The Video Music Suite/Llamasoft £12.95

Now for something completely different! This isn't a computer game, it's a video. So what's it doing in this magazine, you ask? Well, it consists entirely of computer graphics generated by Trip-A-Tron, Jeff Minter's latest light synthesiser software (reviewed elsewhere in this issue) but unlike Trip-a-Tron it can be enjoyed by everyone whatever system they have. The spectacular graphics are Jeff's own visual interpretation of Adrian Wagner's music, which itself was produced electronically using a bunch of synthesisers.

It tells the story of Merak, a 'trans-sentient' android who's been given the unenviable task of protecting the strange region at the centre of the galaxy from alien attack. The galactic core has been found to consist of a huge nebulous cloud of meta-matter which radiates energy in all known forms and frequencies. To human senses it's perceived as a pulsating, iridescent vortex of pure colour, from which it's been nicknamed 'Colourspace'. Now where have I heard that before? The radiation can also be heard - in a form described as 'music that was not music'.

Humans go mad after experiencing the bizarre effects of Colourspace, so the only way to protect the core is to send in a massively armed ship crewed by androids impervious to its hypnotic powers. Merak is the super-android created to lead that expedition. The incredibly complex neural net from which his (her?) brain was constructed has spontaneously become sentient, giving every impression that Merak is alive and has a 'soul'.

The video presents the story mainly in abstract terms, both visually and aurally, and it's not always easy to determine what's actually happening from what your eyes and ears tell you. In many ways it's a bit like watching a modern ballet. Knowledge of the storyline establishes the context, and allows you to better interpret what you see and hear. It's essential you read the scenario notes that come with the video, otherwise you'll have few clues as to what it's all about.

There's not space here to give a detailed description of everything so a brief overview will have to do. Anyway, just how do you describe something which is essentially abstract in nature? It all becomes very subjective and wide open to personal opinion.

The first half of the work, running for about 25 minutes, covers the period from the start of the mission through to Merak's demise. It consists of six 'tracks', representing major events in the life of the mission. They cover initial launch; the journey through hyperspace to the galactic core; the visit to the nearby planet Inti (populated by Jeff's favourite beasts, of course); escape into space and the subsequent encounter with the alien space fleet; the drift through deep space; and the final landing of the dying ship on the Ice Planet. The second, of similar duration, brings revelation of the real nature of the galactic core and what subsequently becomes of Merak's soul.

I found the music rather like film some of the time but generally adding emotion and atmosphere to the visuals. I guess it sometimes comes into the category of 'music that was not music' mentioned earlier, here designed to fit the moods or actions of the storyline. It uses non-musical electronic sounds to suggest things like the bone-chilling cold of the Ice Planet or the mystical, alien nature of the fractal forests on the planet Inti. The first half is more melodic than the second, using swirls of synthesised orchestral textures and choirs singing wordlessly above an insistent, rhythmical backing. It's not the sort of music that burns itself into the memory at first hearing, but it does grow on you the more it's heard. The soundtrack is available separately on CD, vinyl disk, cassette, and DAT tape, but I can't help feeling it would lose something without the visuals. It's aesthetic synergism at work, I guess.

The graphics, too, require several viewings to appreciate fully. They range from the 'reality' of digitised pictures (llamas, sheep, etc!) through 'realistic fantasy' of moving starfields and the spacecraft's status display, through the pure fantasy of the strange fractal trees of Inti and even stranger rotating ice structures on the Ice Planet, to the startlingly complex and colourful purely abstract patterns of the galactic core. There are touches of Minteresque humour too, often through the use of text overlaid on other graphics.

This video is a superb demonstration of Trip-A-Tron's capabilities. Don't think you can easily produce identical results, though. Jeff used four MIDI linked Mega ST's, with their combined graphics output going through an expensive video mixer to achieve some of the effects. He also spent a small fortune in video studio time to produce the quality of recording he required. Even so, I found parts of the display, particularly text, difficult to see clearly.

I've watched the video several times now, and like it more with each viewing. Overall, it makes a refreshing change to the usual TV/video fare and Jeff and Adrian are to be congratulated on taking this first step into what could become a new art form. •

CONTACT

FOR SALE

XL SYSTEM: 800XL fitted with 256k memory, Control Card, XOS 80 column, Supermon Rev. 2, Revision A OS, 1029 printer, 410 cassette, 1050 disk drive with US Doubler and Happy, Atari Assembler Editor cartridge, Monkey Wrench, game cartridges, cassettes, 100 disks in box. £200. Phone 0443 438169

DISK DRIVES: Two 810 disk drives, £60 each o.n.o. Atari 850 interface, £60 o.n.o. All in excellent condition, complete with manuals. Tel. 0635 37516

ANTIC ON DISK: Various issues, £1.50 each. Send you name and address to M. Rogers, 6, Mount Pleasant, Wellington, Somerset, TA21 8DA for full list. Also Prestel adaptor for XL/XE plugs into the expansion socket, £20 with lead for modem.

XL SYSTEM: 800XL with XC12 recorder, 1050 disk drive, joystick, games and manuals. £185. Tel. 01 289 5199 after 5 pm. Excellent condition

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PRINTERS: 1020 Printer/Plotter and paper, £50 plus joystick sketch pad, £2. 1010 tape recorder, £40. 1029 dot matrix printer and dust cover. Various items of software. Mrs S, Oliver. Tel. 0406 26150

MAGAZINES: PAGE 6 issues 7 to 30 in binders, £13. Atari User issues 1 to 36 in binders, £20. Mapping The Atari (unrevised) and Computer Animation Primer, £5 each. PAGE 6 disks, blank disks, disk box, disk notcher, Basic Tutor pack and 70 original games on tape and disk. Phone Steve on 01 907 6394 (Harrow) after 6 pm. Buyer must collect.

BOOKS AND MAGS: Compute!'s 1st Book of Atari, 400/800 Reference manual, £3.00 each, post free. ANALOG nos. 7 to 32 plus some ANTICs, £1.50 each plus postage. Atari User Vol. 1 to 4 only 50p each plus postage. Blank and used disks from my ex-800XL plus disk box. Tel. 0423 879533 after 6 pm/ weekends

BITS AND PIECES: 410 program recorder, original box £10 post free. Ultimon XL, on board OS chip to monitor/debug machine code, etc. £10. Tripler enables you to plug in up to four OS or 80 column chips and switch between them, £7.50. Modem (V21, V22) 300 and 1200 baud, full and half duplex, £75, Datatari interface with software, £30 or both for £100. tel. 0423 879533 after 6 pm/weekends

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GAMES CONSOLE: Boxed new style 2600 console with power pack, TV lead, joystick and 14 cartridges, all in very good condition, £65 or swap for old or new style Commodore 64 (*A WHAT?*) with PSU, TV lead, data recorder and games. Must be boxed and in very good condition. Phone 0422 575539, evenings only please

XL SYSTEM: 800XL with 1050 disk drive, software, joystick and manuals, £150 o.n.o. Tel. John on 0638 662435 ext. 131

XE SYSTEM: 130XE, 1050 with US Doubler, SpartaDos Construction Set, Blackthorn Printer Interface, Ferguson.TX with Atari lead, Epson LX80 printer, loadsa mags, Compute!, PAGE 6, Atari User, De Re Atari etc. All manuals. £450. R. Stephenson. Tel. 0772 633593

WANTED

PRINTER: LX86 or Panasonic KXP 1081 wanted, also Centronics interface for the XL and Transdisk IV. Contact Mrs Taylor on 061 370 4717

INTERFACE: 850 interface, P:R: Connection or similar RS232 interface, must be cheap. Also instruction manual for PACE NIGHTINGALE modem or any info please. Call George on (0925) 601290

DISK DRIVE: 1050 disk drive wanted. Tel. Garstang 09952 5490

DISK DRIVE/PRINTER: 1050 disk drive in running order wanted. Epson or compatible dot matrix printer with interface cable. Will collect if within reasonable distance. Ring Kevin on Oxford (0865) 711091

DISK DRIVE: 1050 disk drive wanted, reasonable price paid. Tel. 0206 211769

DISK DRIVE: 1050 or XF551 disk drive wanted. Reasonable price. Tel. 01 653 7702

DRIVE MOTOR: Does anyone have a dead 1050 disk drive with a good drive motor as mine is on its way out. Ring Mike on Godalming (04868) 24175

BOOK WANTED: Assembly Language Programming For Atari Computers by Mark Chasin, published by Byte/McGraw-Hill. Phone 0506 413773, weekends

PEN PALS/HELP

LURKING HORROR: I am having trouble passing the professor in an effort to enter the lab in Lurking Horror for the ST. What is significant about the huge mass in the small courtyard? How do you keep the human hand from being nicked by the creature on the skyscraper roof and what do you do when you've made a hole in the brick wall? I can offer help with Hitchhiker, Zorks I and II, Sorceror, Deadline and Witness in exchange. Chris Johnson, 26, Henderson Street, North Rockhampton, Australia, QLD 4701

STOURBRIDGE USER GROUP: I want to start a user group in the Stourbridge area and would welcome any help or advice. There are several people in the area who are willing to help but we need advice. L.K. taylor, 99, Bredon Road, Stourbridge, West Midlands, DY8 4LA. Tel. 0384 379575

PEN PALS: I would like to hear from 8-bit disk users around the world. I own an 800XL and 1050 Happy drive. I would like to swap hints, tips etc. about all aspects of gaming. Write or phone Richard Prescott, 54 Middlefield Avenue, Hurst Green, Halesowen, West Midlands, B62 9QL, England. Tel. 021 422 3027

ST USERS: I own an ST and would like to swap tips and lists with pen pals anywhere. All letters answered. Paul Dunn, 270 Crowmere Road, Belvidere Paddock, Shrewsbury, Shropshire, England

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TURBO BASIC

A TUTORIAL SERIES BY GORDON CAMERON

MAKING A START

Basic programming on the 8 bit machines has always been just that, basic. The built-in interpreter is adequate for learning to program, but loses points in terms of ease of use, understandability, and forces you to write very complex looking code to solve even the most basic of problems.

There have always been alternatives to Atari's standard basic (such as Microsoft Basic, Basic XL/XE etc.) but these have tended to be both expensive, and difficult to obtain. However, if you are lucky enough to own an XL or XE machine, plus a disk drive, you now have a cheap alternative in the form of Turbo Basic. Cheap is perhaps slightly misleading, as the language comes free, and is available from most PD sources for a nominal fee, including the Page 6 Accessory Shop.

Turbo Basic is an alternative to the built-in Basic and, like any other machine code program, should be booted from disk whilst holding down the OPTION key. It is completely compatible with Atari's Basic, so all your old masterpieces can be run in Turbo Basic with no changes. The name Turbo Basic is in now way misleading, your programs will run a LOT faster under TB than they used to. The language is not only faster, it is also compact, taking up less memory than the original Basic and (here's the bit you've been waiting for!), TB offers you a wealth of new commands, friendlier error messages, and it structures your programs automatically (more of this later). All this for free! The author of the package is a German by the name of Frank Ostrowoski, who later went on to produce the superb GFA Basic for the ST machines, which bears several similarities, and many enhancements.

You will be completely at home when the blank screen appears after booting, as TB is an interpreted Basic as per the Atari original. This means that you can, among other things, type commands at the keyboard, and these will be executed immediately. As a bonus, the same disk also contains a Basic compiler, which will convert your Atari Basic and TB programs to machine code, so enabling them to run at much higher speed. Basic compilers for the 8 bit used to cost upwards of £50, so this is an absolute steal!

Enough of this preamble. This column is intended to be an introduction to programming using Turbo Basic, making special reference to the new commands. This may seem pretty vague at the moment, but if you want me to talk about a particular topic in future articles, don't hesitate to let me know. Anyway, I guess I'd better start somewhere so here goes. I'll try and make the column as informal and interesting as possible, as I don't want to lose any of you!

YOUR FIRST STEPS

As you may have realised earlier, since TB is a machine code program calling DOS from within TB means that you have to reboot the language after finishing your disk operations. At first sight, this seems like a major blow, however TB contains disk accessing commands which means that, in many cases, you need not enter DOS at all.

DIR, DELETE, RENAME, LOCK, UNLOCK, BLOAD and BRUN.

To obtain a list of files on disk, the command DIR may be used. This is equivalent to the DOS option A. Used on its own, the command lists all files on the current drive. Wildcards can be used, along with drive identifiers, by enclosing these in quotes, following DIR. As in DOS, '*' matches any number of characters, whilst '?' matches exactly one, and the drive identifier is given as 'Dx:' where x is the drive number.

DIR "D2:*. *"	List all files on drive 2
DIR "D1:*.? ST"	List all files on drive 1 with extenders ending ST (i.e. any character followed by S followed by T)
DIR "D3:A*. *"	List all files on drive 3 which start with the letter A

The **DELETE** function erases a file on disk, the file being identified by "Dx:name", where x is the drive number, and name is the name of the program to delete. Multiple deletions can be done by using wildcards, as demonstrated above in the DIR examples.

DELETE "D1:fred. txt"	Deletes the file 'file. txt'
DELETE "D1:*. txt"	Deletes all files ending '. txt'
DELETE "D2:fred. t? t"	Deletes all files on drive 2, ending with 't' followed by any character, followed by 't'.

The **RENAME** command works similarly, with the constraint that the files are on the same drive. (Stands to reason, really!) The format is, RENAME "Dx:source, destination", where x is the drive number, and source and destination the name of the file to be renamed and what it is to be called.

RENAME "D1:fred. txt, john. txt"
Changes the file 'fred. txt' on drive 1, to 'john. txt' (Wildcards can be used, as in the above examples.)

LOCK/UNLOCK are equivalent to DOS options F and G respectively, and protect files from writing, and vice versa. Filenames are handled as in previous examples, i.e. (UN)LOCK "Dx:filename".

Finally, **BLOAD and BRUN** allow you to binary load and run a file respectively. The format is as before (**BLOAD "Dx:filename"**), and these commands correspond to DOS option L with the option to RUN on or off.

STARTING TO PROGRAM

Although TB has many similarities to Atari Basic, and can, at its simplest level be used at a faster version of the latter, there are many fundamental improvements that you should try to use.
The language allows you to structure your programs. I won't go into a full discussion of the merits of structured programming, as this was dealt with admirably in the last issue of Page 6 by Roy Goring. Suffice to say that, by making use of the new program flow commands, you can vastly improve the readability and understandability of your programs, whilst simplifying the writing of programs by allowing you to deal with bits of a problem, instead of attempting to write the entire program in one go.
Phew! Why bother, you may ask. Well, put simply, have you ever tried to understand and perhaps change an even moderately long program, weeks or months after you wrote it? If so, you will know that it is often difficult to understand what a certain piece of cryptic code does, and what happens if you do such and such, and then what if I do this, then what? ..... and so on.
If you use a lot of GOTO commands in your programs, it becomes difficult to work out afterwards where all these jumps lead. Perhaps to other jumps which in turn ... . This results in a phenomenon known as spaghetti coding. Programs 'should' be written with as few GOTO's as possible, and the extra commands in TB make this possible. Also, if YOU can't understand your own code, then what chance is there that anyone *else* will know what you meant?!
Before I move on, I should point out that it is possible, in Turbo Basic, to renumber a program. This is useful when you are running out of lines and need to squeeze something in between, say, lines 61 and 62. **RENUM** a, b, c will start renumbering your program from line a, with numbers starting at b, and increasing by c each time. So

RENUM 0, 10, 10 will renumber your entire program, making the new version start at line 10, and all subsequent lines 10 greater than the last.

As I was saying, it is often difficult to remember what you were trying to do when you wrote a program, or what some other programmer meant. It is a good practice to get into using REM statements to add comments to your program. In this way, you at least have some idea what is going on. If you have a bit of program which sorts some data into order, include a line with a **REM** saying so. In Turbo Basic, if you type two dashes (--) after a line number, and press Return, the computer will put in 30 '-' signs. This is a special kind of REM, and is useful for separating out bits of your program, to make it more readable.

INDENTING

One way to make your code understandable is to indent your program. This way, it is easy to work out what bit of code refers to which loop, and so on. For example, you will have, at some time, used a FOR loop in your Basic programs. Try typing the following program in Turbo Basic.

```
10 FOR L=1 to 10
20 S=L*L
30 PRINT L, S
40 NEXT L
```

This is a bog standard Basic program, which prints out all the numbers between 1 and 10, along with their squares. Now type LIST. Hey Presto! The code has been automatically indented.

```
10 FOR L=1 TO 10
20   S=L*L
30   PRINT L, S
40 NEXT L
```

As I'm sure you'll agree, this is easier to read, although it is a rather trivial example. Imagine you had many nested FOR :. NEXT loops, though, and the indented version is much easier to read AND understand.

INDENTED / **NORMAL ATARI Basic**

```
10 FOR A=1 TO 10              10 FOR A=1 TO 10
20   C=5                      20 C=5
30   FOR B=1 TO 10            30 FOR B=1 TO 10
40     PRINT B*A+C            40 PRINT B*A+C
50     C=C+1                  50 C=C+1
60   NEXT B                   60 NEXT B
70   PRINT "EXITED LOOP"      70 PRINT "EXITED LOOP"
80 NEXT A                     80 NEXT A
```

See? Turbo Basic *AUTOMATICALLY* does the indenting, and this alone makes your programs more structured than their Atari Basic counterparts. This is all very well, but TB offers many control structures which indent the commands associated with them, just as the commands in each FOR .. NEXT loop above are indented.

STRUCTURED COMMANDS

IF .. ELSE .. ENDIF

The **IF** command can be used as it is in Atari Basic. That is, IF followed by a condition followed by a list of things to be done if the condition is true. In Turbo Basic these commands, however, have to be on the same line number. Not so, however, in Turbo Basic. If you have a few commands to be done, then these can be written on separate lines, by putting on the first line 'IF condition' on its own. Notice that the word 'THEN' does NOT appear when using this form. ALL LINES after that point will then be interpreted as being executed ONLY if the condition is true, until the program comes across a line with the command 'ENDIF'. Take, for example, the following program in standard Atari Basic.

```
5 M=5
10 FOR L=1 TO 10
20 PRINT L, M
30 IF L<5 THEN PRINT "L IS LESS THAN 5": M=M+1:
GOSUB 9000
40 NEXT L

  -------
  -------

9000 REM THIS IS A RATHER SILLY PROGRAM!!
9010 PRINT "L SQUARED IS ", L*L
9020 RETURN
```

This could be rewritten in Turbo Basic as follows. Remember, the tabs/spaces are generated by TB itself when the program is listed, you don't have to type them.

continued overleaf

```
5  M=5
10 FOR L=1 TO 10
20   PRINT L, M
30   IF L<5
40      PRINT "L IS LESS THAN 5"
50      M=M+1
60   PRINT "L SQUARED IS ", L*L
70   ENDIF
80 NEXT L
```

So, as you can see, all the code between lines 30 and 70 is indented, and is done if L<5. The command **ENDIF** marks the end of the code to be executed under the condition. This method allows you to do many more commands than the single line IF found in Atari Basic. TB, however, has more up it's sleeve. What if you wanted to do one set of commands if the condition is met, and another set otherwise? Normally, you would do something like :

```
30 IF L<5 THEN .........
35 IF L>=5 THEN PRINT "L IS NOT LESS THAN 5!! "
```

In Turbo Basic, this becomes :

```
30  IF L<5
40      ...........
70  ELSE
72      PRINT "L IS NOT LESS THAN 5!! "
74      PRINT "SEE HOW MUCH EASIER IT IS!! "
76  ENDIF
```

It is instantly obvious which bit of code belongs to what. The ELSE command is used on a line on its own, instead of the ENDIF, to say to the computer that the lines following are to be executed if the test condition on the IF line was FALSE (In this case if L is NOT less than 5). When the lines with these alternative commands are finished, you use the ENDIF statement to finish the IF command. So the generalised form is :

```
IF <condition>
    command 1
    command 2......
ELSE
    command 1
    command 2......
ENDIF
```

with the ELSE being entirely optional. It is entirely up to you whether you want to use the old type of IF, or the new one. TB doesn't force you to use the structured IF, but gives you the choice.

'Nesting' is a powerful concept, which allows IF .. ENDIF blocks to appear inside other IF.. ENDIF blocks, which can in turn be inside other IF.. ENDIF blocks, and so on. This is because the IF .. ENDIF construction is treated as being a single block/command, so things like

```
1  IF A>5
2     B=B+1
3     IF B>10
5        PRINT "DEMO. "
6        C=C+5
7     ENDIF
8  ENDIF
```

are quite possible. It is best to experiment with this technique to get to grips with it, rather than take my word for it.

In fact, the IF ... ELSE ... ENDIF construction is a structured way of thinking. There is one entry point to the IF statement, and only one exit point (ENDIF). This is preferable to jumping about all over the place, and getting totally lost. All the additional control structures follow this concept, and discourage the use of the GOTO command. They can also be nested and combined, but more of this later.

REPEAT .. UNTIL, WHILE .. WEND, DO .. LOOP

The FOR .. NEXT loop is ideal for doing things a set amount of times. What happens, however, if you DON'T KNOW beforehand how many times you want to go round a loop. Say, for example, you want to repeat a section of code until the user enters the number 0 at the keyboard. The FOR .. NEXT loop can't help, as you don't know how many times to loop! In Atari Basic, you would have to make use of the dreaded GOTO command, and as we all now know, this is UNSTRUCTURED! Your program would look something like the following :

```
10 INPUT X
20 IF X=0 THEN GOTO 50
30 Y=X*X
40 PRINT Y, X
50 REM THIS IS WHERE THE GOTO COMES
```

Even with this small example, it is not instantly obvious what is done, and when. The **REPEAT ... UNTIL** construction allows us to make this problem simpler. The word REPEAT is on a line on its own, and all the code after this is executed until the keyword UNTIL is encountered. The condition following the UNTIL is calculated, and if it is found to be FALSE, the computer exits the loop, and continues onwards. Otherwise, the program loops back to the first line after the REPEAT, and so the process continues. For example :

```
10 REPEAT
20    INPUT X
30    Y=X*X
40    PRINT Y, X
50 UNTIL X=0
```

This says that the code after the REPEAT is executed UNTIL the value of X is zero. See how much simpler this is to visualize, with no jumps AROUND code, as in the Atari Basic example. Notice however that the REPEAT ... UNTIL loop calculates the condition at the tail of the loop - in other words, the code contained within the REPEAT and UNTIL commands is always executed AT LEAST ONCE, and the condition is not tested until the end. So, in the above example, X is not tested until AFTER the value of Y is calculated, and the PRINT statement executed. So, when the user types 0, the values of Y and X are STILL printed out before the loop terminates, unlike the example using GOTO. This is not a failing, but is something you must be aware of. REPEAT ... UNTIL checks conditions at the end of the loop, and always executes at least once.

The construction **WHILE ... WEND** on the other hand, checks its condition at the beginning, or head, of the loop. If this condition is found to be true, then the loop is executed, otherwise it is exited. So, the loop is started with the command WHILE followed by a condition on a line on its own. The commands after this are then executed until the word WEND is encountered, at which point the computer goes back to the line containing the word WHILE, and again evaluates the condition. Unlike REPEAT ... UNTIL, this means that the loop may not be executed AT ALL, as the condition is checked FIRST.

```
10 INPUT X
20 WHILE X<>0
30    Y=X*X
40    PRINT Y, X
50    INPUT X
60 WEND
```

The above code does EXACTLY the same as the example which used GOTO. If you type 0 at the very start, the loop will not execute, and nothing will be printed. Notice that I have had to put an extra INPUT X command at line 10. I won't tell you why, but, using what you know now, you should be able to work out why it is necessary in this case.

So, now you have at your fingertips four structured commands:

1) The FOR .. NEXT loop, which is useful when you know how many times you wish to go round a loop BEFORE you get there.
2) The REPEAT .. UNTIL loop, which is useful when you don't know beforehand how many times you want to execute a loop, but want to do it at least once. Repeats UNTIL a condition is true.
3) The WHILE .. WEND loop, which is similar to 2) except that it calculates the condition BEFORE entering the loop. Repeats WHILE a condition is true.
4) The IF.. (ELSE).. ENDIF construct, which allows you do do certain things if as condition is true, and other things if it is false.

All of the above can be nested and combined, just like the example I gave with the IF .. ENDIF construct.

It is up to you to decide which of the looping constructs to use, but the above descriptions should enable you to use the one which is best for the job. In addition, there is a another looping construct. If you place the word DO on a line on its own, and LOOP on a later line, then all commands between these will be executed indefinitely - an infinite loop. This may be useful in, for example, a continuous demonstration program, which cycles ad infinitum. The command is made slightly more useful by the addition of the keyword EXIT. This can be included in an IF clause. The above example can then also be written as follows:

```
10 DO
20   INPUT X
30   IF X=0 THEN
40      PRINT "EXITING.. "
50      EXIT
60   ENDIF
70   PRINT Y, X
80  LOOP
```

ROUNDING OFF

So there you have it - a brief description of the language, and the structured commands available. I realise that the above may be difficult to digest all at once, but persevere, and just spend some time experimenting, until you get the hang of things. This article is rather long, and I apologise if it appears over long. I wanted to get across the basics(sic) of the language, and highlight differences, for the benefit of complete beginners, whilst giving something concrete for those already competent Basic programmers to work on. I promise that the next article will be shorter, and I hope to deal with subject of Procedures, as well as covering some more commands unique to Turbo Basic.

If you have any queries, or wish me to talk about a certain subject in a future issue, please do not hesitate to contact me at the address at the foot of this article. I'll try and help, and try not to cover the same ground as Mark Hutchinson in his previous First Steps columns.

Write with your requests, suggestions and comments to Gordon Cameron, 13 Muir Bank, Scone, Perthshire, PH2 6SZ, SCOTLAND.

Designer Keys

Jason Peasgood's program provides a custom written subroutine to redefine your keyboard any way you choose

Have you ever wanted to redefine the keys on your Atari so that each key can produce different ASCII characters? Maybe as part of a program to ensure that only certain characters are used or so that frequently used characters are easier to type? With this program you can do just that. Each of the possible 159 different key combinations available can be programmed to produce any character you wish.

Some special characters available to you include 'cursor home', 'cursor bottom left', 'cursor to left margin' and 'cursor to right margin'. These have ASCII values of 142-145 respectively.

GETTING STARTED

First of all, type in the program and save it on disk or cassette. Now run the program and you will be presented with a table of 192 different characters. These characters are what is produced on the screen when the letter on the left is pressed. The first column is what is produced when the key is pressed in lower case mode, the second column is what is produced when SHIFT is pressed with that key, and the third column shows what is produced when CONTROL and that key is pressed.

REDEFINING KEYS

Using Joystick 1 you can move the cursor around the table to the character you want to change. When you are next to your desired character simply press 0the new key combination you want it to produce. So if you wanted to redefine the delete key to produce a space you would direct the cursor to the delete symbol and once there a press of the space bar will have redefined that key.

OPTIONS

A press of the HELP key will present you with a screen showing what to press to produce special characters like 'cursor home' and 'keyclick toggle' as well as others like 'CAPS lock' and 'inverse toggle'.

Pressing START will access the save menu. This will save a subroutine to disk, cassette or printer which you can use in your own programs in LISTed format. So if you chose to save it to disk you would enter it with ENTER "D:filename.ext". When this subroutine is run the new keyboard you created will be installed.

The SELECT key allows you to install your new keyboard. If you don't want a re-usable subroutine then this will immediately install your new keyboard and end the program.

If you get into a bit of trouble using the program, or just wish to start again, a press of the OPTION key will cancel everything and start the program again from new.

```
EI 1 REM ********************************
XT 2 REM *          DESIGNER KEYS       *
RQ 3 REM *               by             *
YR 4 REM *        Jason  Peasgood       *
EC 5 REM * ---------------------------- *
IZ 6 REM *  PAGE 6 MAGAZINE - ENGLAND   *
EO 7 REM ********************************
NN 8 REM
UZ 10 REM INITIALISE AND PRINT SCREEN
GU 20 DIM KEY$(192),FN$(15)
HM 30 TRAP 1300
VE 40 FOR R=1 TO 192
WZ 50 READ A
LD 60 POKE 1535+R,A
LY 70 NEXT R
LW 80 GRAPHICS 0
FI 90 POKE 710,70:POKE 709,15:POKE 712,30
   :POKE 82,0:POKE 752,1:POKE 732,0
IB 100 FOR R=1 TO 192
OL 110 KEY$(R,R)=CHR$(PEEK(1535+R))
JH 120 NEXT R
KI 130 POSITION 8,1:? "***  Designer Tabl
   es  ***"
IF 140 KEYS=1:RESTORE
WR 150 POKE 764,255
QM 160 FOR R=1 TO 4
YS 170 FOR T=1 TO 16
AO 180 READ A:IF A=155 THEN 200
CK 190 POSITION ((R-1)*10)+2,T+4:? "{";CH
   R$(A)
HQ 200 A=ASC(KEY$(KEYS,KEYS)):B=ASC(KEY$(
   KEYS+64,KEYS+64)):C=ASC(KEY$(KEYS+128,
   KEYS+128))
MD 210 IF A=155 THEN A=32
NG 220 IF B=155 THEN B=32
OJ 230 IF C=155 THEN C=32
KE 240 POSITION ((R-1)*10)+4,T+4:? "{";CH
   R$(A);" {";CHR$(B);" {";CHR$(C)
XM 250 KEYS=KEYS+1
KK 260 NEXT T
JS 270 NEXT R
WQ 280 FOR R=1 TO 31 STEP 10
WN 290 POSITION R+3,4:? "L S C"
JF 300 NEXT R
OY 310 POSITION 1,22:? "■ Home ▜ B left ▙
```

HOW DOES IT WORK?

The program works by creating a new 192 byte keyboard table in memory. This is where the computer looks to see what to print on the screen when it detect a keypress. The first 64 bytes are the lower case codes, the next 64 are shifted code and then come the 64 control codes.

The subroutine that is saved by the program puts the new location of the table at the start of page 6, but you can move this anywhere you like, as long as you are careful not to erase it. If you do relocate it you must alter the keyboard pointer at location 121/122. The pointer here is stored in LSB/MSB format, so POKE 121,0:POKE 122,6 will point to location 1536 (PEEK(121)+PEEK(122)*256).

```
   Left ▖ Right ▘ Click"
ZO 320 X=3:Y=5
VU 330 REM  MAIN LOOP 
SP 340 COLOR 159:PLOT X,Y
BY 350 X1=X:Y1=Y
ID 360 S=STICK(0)
VN 370 IF PEEK(764)<>255 THEN GOSUB 540
TX 380 IF PEEK(53279)=6 THEN GOSUB 1650:G
   OTO 800
YW 390 IF PEEK(53279)=5 THEN GOSUB 1650:G
   OTO 1240
PR 400 IF PEEK(53279)=3 THEN GOSUB 1650:R
   UN
AA 410 IF PEEK(732)=17 THEN GOSUB 1650:GO
   TO 1080
RL 420 X=X+(S=5 OR S=6 OR S=7)-(S=9 OR S=
   10 OR S=11)
AE 430 IF X>39 THEN X=0
YQ 440 IF X<0 THEN X=39
KY 450 IF  NOT ((X=3)+(X=5)+(X=7)+(X=13)+
   (X=15)+(X=17)+(X=23)+(X=25)+(X=27)+(X=
   33)+(X=35)+(X=37)) THEN 420
PG 460 Y=Y+(S=5 OR S=9 OR S=13)-(S=6 OR S
   =10 OR S=14)
UC 470 IF Y<5 THEN Y=20
BF 480 IF Y>20 THEN Y=5
TO 490 IF X1=X AND Y1=Y THEN 340
ME 500 SOUND 0,255,10,15:SOUND 1,10,12,4
DM 510 SOUND 0,0,0,0:SOUND 1,0,0,0
SC 520 POSITION X1,Y1:? " ";
OC 530 GOTO 340
ZK 540 REM  GET LETTER 
PO 550 OPEN #1,4,0,"K:"
CH 560 GET #1,A
TG 570 FOR R=15 TO 0 STEP -0.7
TT 580 SOUND 0,255/(R+1),10,R
MC 590 SOUND 0,10,10,R
JI 600 NEXT R
NW 610 POSITION X+1,Y:? "␛";CHR$(A)
GN 620 IF A=155 THEN POSITION X+1,Y:? " "
   ;
NE 630 IF X=3 THEN ST=0
IQ 640 IF X=5 THEN ST=64
ZK 650 IF X=7 THEN ST=128
BL 660 IF X=13 THEN ST=16
CY 670 IF X=15 THEN ST=80
VP 680 IF X=17 THEN ST=144
AH 690 IF X=23 THEN ST=32
IS 700 IF X=25 THEN ST=96
TQ 710 IF X=27 THEN ST=160
GB 720 IF X=33 THEN ST=48
QW 730 IF X=35 THEN ST=112
AK 740 IF X=37 THEN ST=176
ZF 750 POKE 1536+ST+(Y-5),A
RF 760 KEY$((ST+(Y-5))+1,(ST+(Y-5))+1)=CH
   R$(A)
LR 770 CLOSE #1
ZT 780 RETURN
SN 790 REM  [START] - SAVE ROUTINE 
RF 800 ? "K"
KL 810 POSITION 8,1:? "***  Designer Tabl
   es  ***"
JN 820 POSITION 2,3:? "Input Device:Filen
   ame.Ext."
PN 830 POSITION 2,7:? "Press RETURN to ex
   it."
JK 840 POSITION 2,5:? "-->";:INPUT #16,FN
   $
PR 850 IF FN$="" THEN GOTO 1050
QL 860 POSITION 2,9:? "Input First line n
   o. -->";:INPUT #16,LINE
PX 870 POSITION 2,11:? "Input Increment -
   ->";:INPUT #16,INC
BH 880 OPEN #1,8,0,FN$
YF 890 ? #1;LINE;" FOR R=1536 TO 1727:REA
   D A:POKE R,A:NEXT R"
IW 900 LINE=LINE+INC
JO 910 ? #1;LINE;" POKE 121,0:POKE 122,6"
JA 920 LINE=LINE+INC
HR 930 D=1536
XK 940 FOR R=1 TO 24
SN 950 ? #1;LINE;" DATA ";
TI 960 FOR T=1 TO 7
CH 970 N=PEEK(D)
SK 980 ? #1;N;",";
OS 990 D=D+1
JG 1000 NEXT T
IC 1010 N=PEEK(D):? #1;N
ZI 1020 LINE=LINE+INC:D=D+1
IT 1030 NEXT R
MV 1040 CLOSE #1
LF 1050 ? "K"
OU 1060 GOTO 130
GM 1070 REM  [HELP] - DISPLAY INFORMATION 
   █
LO 1080 ? "K"
ZW 1090 POSITION 8,1:? "***  Designer Tab
   les  ***"
RT 1100 POSITION 15,3:? "Help Screen"
BO 1110 POSITION 2,5:? "Press [START] to
   save subroutine."
SQ 1120 POSITION 2,7:? "Press [SELECT] to
    install keyboard."
VY 1130 POSITION 2,9:? "INV-CTRL-N [▄] is
    cursor home."
QW 1140 POSITION 2,11:? "INV-CTRL-O [▀] i
   s cursor to btm-left."
JB 1150 POSITION 2,13:? "INV-CTRL-P [♣] i
   s cursor to left."
YM 1160 POSITION 2,15:? "INV-CTRL-Q [▛] i
   s cursor to right."
NJ 1170 POSITION 2,17:? "INV-CTRL-I [▜] i
   s keyclick toggle."
UP 1180 POSITION 2,19:? "▌ - Inverse togg
   le  █ - CAPS toggle."
EG 1190 POSITION 2,21:? "▟ - CAPS lock
     ▐ - Ctrl key lock.";
FV 1200 POKE 764,255
WA 1210 IF PEEK(764)<>255 THEN POKE 732,0
   :? "K":POKE 764,255:GOTO 130
OJ 1220 GOTO 1210
CG 1230 REM  [SELECT] - INSTALL KEYBOARD 
BJ 1240 GRAPHICS 0
MC 1250 POKE 82,2
RC 1260 ? :? "NEW KEYBOARD INSTALLED."
TG 1270 POKE 121,0:POKE 122,6:POKE 702,64
FP 1280 END
CA 1290 REM  ERRORS 
KW 1300 ? "K"
ZE 1310 POSITION 8,1:? "***  Designer Tab
   les  ***"
QH 1320 POSITION 2,3:? "Error # ";PEEK(19
   5);" has occured."
XP 1330 POSITION 2,5:? "Press any key to
   continue."
NB 1340 CLOSE #1
NB 1350 TRAP 1300
GP 1360 POKE 764,255
PG 1370 IF PEEK(764)<>255 THEN ? "K":GOTO
    130
SP 1380 GOTO 1370
GC 1390 REM  KEYBOARD DATA 
XB 1400 DATA 108,106,59,128,128,107,43,42
JT 1410 DATA 111,128,112,117,155,105,45,6
   1
GH 1420 DATA 86,128,99,128,128,98,120,122
IJ 1430 DATA 52,128,51,54,27,53,50,49
GF 1440 DATA 44,32,46,110,128,109,47,129
AX 1450 DATA 114,128,101,121,127,116,119,
   113
BL 1460 DATA 57,128,48,55,126,56,60,62
DC 1470 DATA 102,104,100,128,130,103,115,
   97
SP 1480 DATA 76,74,58,128,128,75,92,94
AU 1490 DATA 79,128,80,85,155,73,95,124
JV 1500 DATA 86,128,67,128,128,66,88,90
IC 1510 DATA 36,128,35,38,27,37,34,33
NC 1520 DATA 91,32,93,78,128,77,63,129
BF 1530 DATA 82,128,69,89,159,84,87,81
LE 1540 DATA 40,128,41,39,156,64,125,157
CA 1550 DATA 70,72,68,128,131,71,83,65
MK 1560 DATA 12,10,123,128,128,11,30,31
LI 1570 DATA 15,128,16,21,155,9,28,29
YF 1580 DATA 22,128,3,128,128,2,24,26
SK 1590 DATA 142,128,133,144,27,143,253,1
   28
JG 1600 DATA 0,32,96,14,128,13,0,129
ZB 1610 DATA 18,128,5,25,158,20,23,17
CH 1620 DATA 0,128,0,145,254,137,125,255
LA 1630 DATA 6,8,4,128,132,7,19,1
TE 1640 REM  SOUND 
AK 1650 FOR R=15 TO 0 STEP -1
XF 1660 SOUND 0,255,10,R
XE 1670 SOUND 1,254,10,R
JU 1680 NEXT R
IJ 1690 SOUND 0,0,0,0
HW 1700 SOUND 1,0,0,0
AQ 1710 RETURN
```

GETTING TO GRIPS WITH GRAPHICS

Len Golding continues his series from Atari User with a look at programming in Graphics modes 3 to 7

We're starting Intermediate-level programming this issue, with a close look at the colour 'map' modes - Graphics 3 to Graphics 7. Although these are programmed in Basic, like the text modes 0 to 2, they behave quite differently - it's almost like having a new computer to play with. If you've followed the series in the old Atari User, you should have no difficulty adapting to the new rules.

Start by typing GRAPHICS 3 and hit Return. The screen splits into two, with 'READY' printed in the lower window, just as it did in Graphics 1 and 2. So far so good, but now try printing something in the Graphics window:

```
PRINT #6;"HELLO"
```

What happens? You get a couple of small coloured squares at top-left of the screen. Not a letter in sight! Changing the letters from upper to lower case, or from normal to inverse has no effect - the same orange and blue squares appear. This is lesson number one: you can't send text characters to the graphics window in modes 3 to 7.

The computer treats the graphics window as a grid of dots, or 'pixels'. You can switch these pixels on or off, and make them different colours, so it's possible to construct patterns or pictures. Before we look at a typical drawing program, let's examine the screen layout and the Basic commands involved.

The five map modes all work in substantially the same way; the differences between them lie in the number and size of pixels, and the number of colours available. Table 1 shows all the relevant information. You'll see that, although there are five colour registers inside your Atari, the map modes can use only four of them at most, and one of these must be the background colour.

Now, how can we turn a pixel on or off, and change its colour? The theory is fairly straightforward: first we specify the desired colour, using the COLOR command, then we print a pixel of that colour at the desired co-ordinates, using PLOT. But confusion starts to creep in when we try to make sense of the COLOR command, used in this new way.

MODE	SCREEN SIZE		COLOURS
3	With text window	40 x 20	4
	No text window	40 x 24	
4	With text window	80 x 40	2
	No text window	80 x 48	
5	With text window	80 x 40	4
	No text window	80 x 48	6
6	With text window	160 x 80	2
	No text window	160 x 96	
7	With text window	160 x 80	4
	No text window	160 x 96	

Table 1: Screen characteristics in the 'map' modes

The best advice is to forget you ever encountered COLOR before, and treat it as an entirely new command which has nothing to do with text characters. In the five map modes, COLOR simply tells the computer which colour register to use when it plots the next pixel. For example:

```
10 GRAPHICS 3
20 COLOR 1:PLOT 20,9
```

This gives you a small orange square roughly in the middle of the screen - column 20, row 9. If you change line 20 to select COLOR 2, the square will be yellow. COLOR 3 turns it blue, and COLOR 0 erases it by turning it the same colour as the background. Numbers greater than three will select one or other of the four available colours, but it can be a bit tricky to forecast which one will emerge, so it's best to stick to the recommended range: 0 to 3.

Now you might expect that COLOR 1 would select the colour stored in register 1, COLOR 2 would use register 2 and so on, but for some unfathomable reason it ain't so. Instead, COLOR 1, 2 and 3 access registers 0, 1 and 2 respectively, register 3 cannot be accessed in any of the five map modes and COLOR 0 selects register 4! If you find this confusing, join the club. The only way to get things straight is to play around for a while.

Table 2 may help: it shows the registers which are available in each of the map modes, their default colours and the COLOR number which selects each register. For example if you want to plot a blue pixel at top-left of the screen (co-ordinates 0,0), you would select register 2, using the COLOR 3 command:

```
COLOR 3:PLOT 0,0
```

The registers can be made to contain any colour you like, using the SETCOLOR command which we covered in part 5. For example:

```
SETCOLOR 1,0,12
```

will change the contents of color register 1 from yellow to white. To plot a white pixel at top-left of the screen, you would now use:

```
COLOR 2: PLOT 0,0
```

Why COLOR 2 not COLOR 1? If you're not sure, go back and read the last few paragraphs again. Once you understand the principle, try erasing the white pixel by plotting the background colour over it.

TIME FOR A PROGRAM!

Now let's have some fun. Is there an Etch-a-Sketch in the house? Send it back and use Program 1 instead - it will do everything the toy can do, and much more, in full living colour.

Since we're now working at intermediate level, there's no need to keep our programs to their most simple and rudimentary form. Program 1 therefore contains a few little extras which make it easier and more friendly. The text window messages remind you which keys to press for the various options, and remind you which colour register you're currently using. As well as the three foreground colours, the program gives you 'pen-up', erase and screen clear facilities.

We start by dimensioning four strings to hold the text messages: 'Orange', 'Yellow', 'Blue' and 'Erase'. Then we set up the Graphics mode. We've chosen mode 5, to give the best compromise between resolution and ease of use. Very small children might be happier in mode 3, while experienced older users will probably prefer mode 7. It's easy to change the mode - just alter line 30 to suit the new screen boundaries, and insert a new starting position at line 40.

Line 50 needs some explanation, since we've not come across address 764 as yet. This address holds a number corresponding to the last keyboard key pressed. If you press '1', the number returned is 31, while '2', '3' and '0' give you 30, 26 and 50 respectively. Line 50 simply intitialises the values for K (Current key pressed), K1 (Previous key pressed) and C (Colour register currently in use), to ensure that the program starts off in Erase mode. Line 60 then prints the messages in the text window.

Lines 70 to 90 contain the familiar Boolean joystick routine, and line 100 reads address 764 to see which key was last pressed. If it was the letter 'C' (keycode 18), then the screen is cleared and the program starts again from scratch. Otherwise the keycode is converted into a number from 0 to 3 by the Boolean statement at line 120. Note that any key other than '1', '2', '3' or 'C' will select the erase mode, by setting the value of C to zero.

Line 130 checks whether you've selected a new colour; if so, it calls subroutine 200 to re-print the text window, highlighting the appropriate option. Lines 140 and 150 do the actual drawing on creen. If the joystick trigger is not pressed, the pixel is plotted permanently in its desired colour. If the trigger is pressed, then we use our usual technique to move without disturbing the picture - this is 'pen-up' mode.

Line 160 simply ensures that the 'cursor' pixel will remain visible even in Erase mode, by making it orange. A short time delay is introduced at line 180, which slows down the drawing speed and makes it easier for small children to handle. You can change the value of W, or eliminate line 180 entirely, if you wish.

The subroutine at line 200 handles the text messages. If you decide to change the default colours, using the SETCOLOR command, you should also alter these messages to avoid confusing the user!

The program is raelly just a starting point. Try to add things that you may have learned from other articles and create a program that is yours. In future issues I will give you more programming hints so that you can build up your own programs more effectively. See you again!

```
WO 1 REM ********************************
NJ 2 REM *    De-Luxe Etch-a-Sketch     *
ZS 3 REM *         by Len Golding       *
SQ 4 REM * ---------------------------- *
KB 5 REM * PAGE 6 MAGAZINE - ENGLAND    *
WT 6 REM ********************************
NO 9 REM
OM 10 DIM A$(10),B$(10),C$(10),D$(10):REM
    Strings to hold 'mode' messages
GZ 20 GRAPHICS 5:POKE 752,1:REM Select Gr
   aphics mode and turn off the text wind
   ow cursor
HZ 30 XMAX=79:XMIN=0:YMAX=39:YMIN=0:REM S
   et screen boundaries to suit Graphics
   mode 5
BF 40 X=40:Y=20:REM "Cursor" pixel's star
   ting position
EC 50 C=0:K=50:K1=K:POKE 764,K:REM Initia
   lise in Erase mode
YI 60 GOSUB 200:REM Print intial messages
   in text window
DL 70 S=PEEK(632):REM Read joystick and c
   alculate new "cursor" position:
LL 80 X1=X+((S=5 OR S=6 OR S=7) AND (X<XM
   AX))-((S=9 OR S=10 OR S=11) AND (X>XMI
   N))
JG 90 Y1=Y+((S=5 OR S=9 OR S=13) AND (Y<Y
   MAX))-((S=6 OR S=10 OR S=14) AND (Y>YM
   IN))
VZ 100 K=PEEK(764):REM Read keyboard to s
   ee which colour is required
SS 110 IF K=18 THEN GOTO 20:REM 'C' Clear
   s the screen and starts again
RF 120 C=1*(K=31)+2*(K=30)+3*(K=26):REM C
   onvert keycode into a colour register
   number
AR 130 IF K<>K1 THEN GOSUB 200:K1=K
ZQ 140 IF STRIG(0)=1 THEN COLOR C:PLOT X,
   Y:GOTO 160:REM Plot the colour if trig
   ger is not pressed
XP 150 COLOR Q:PLOT X,Y:REM Otherwise go
   into 'pen-up' mode
LN 160 IF C=0 THEN C=1
HR 170 LOCATE X1,Y1,Q:COLOR C:PLOT X1,Y1:
   X=X1:Y=Y1
JT 180 FOR W=1 TO 50:NEXT W:REM Short tim
   e delay, to reduce drawing speed
SC 190 GOTO 70
TL 200 A$="Orange":B$="Yellow":C$="Blue":
   D$="Erase"
NH 210 IF C=1 THEN A$="ORANGE"
TB 220 IF C=2 THEN B$="YELLOW"
IJ 230 IF C=3 THEN C$="BLUE"
TK 240 IF C=0 THEN D$="ERASE"
VK 250 ? CHR$(125):REM Clear text window
MJ 260 ? "1=";A$;"  2=";B$;"  3=";C$;"  0
   =";D$
IE 270 ? :? "TRIGGER='Pen-up'      C=Clear
    Screen"
ZO 280 RETURN
```

MODE	REGISTERS AVAILABLE	DEFAULT COLOUR	'COLOR' No. TO SELECT REGISTER
3,5 7	0 1 2 4 *	Orange Yellow Blue Black	1 2 3 0 *
4,6	0 4 *	Orange Black	1 0 *
* Controls the background colour			

Table 2: Using colour in the 'map' modes

FLIGHT LOG

Les Howarth presents a program to calculate random assignments for Flight Simulator II and also an adventure for those who have Scenery Disk 7

Looking for a new challenge for Flight Simulator II? Here is a fun program which will give you a number of assignments each starting from a random airport with three other airports have to be visited in the allotted time.

The schedule is output to a printer, any Epson compatible should work with this listing but the printer codes may be changed or deleted for any other printer. If you don't own a printer the information is also displayed on screen for you to make a copy by hand but it will be necessary to delete the LPRINT statements or make them into REM statements. The printout gives the following information:

> **MAP AREA** and a random wind factor.
> **CITY and AIRPORT** followed by the North and East co-ordinates.
> **F/TIME** - the estimated flight time in minutes to the next airport on the schedule.
> **T/OFF** - departure time. The first airport departure always starts at 8.03 am. This gives you just enough time to set the NAV radio, VOR and check what heading will be needed.
> The last column is for you to write in the actual time you take off in order to compare flight times.

If you land at the next airport in the allotted time you will have just 2 minutes to reset your radios and check your destination on the map. If you arrive early, you may even have time for a quick coffee in the airport lounge! The T/OFF time at the final airport is really the actual LANDING time, so you must be down and stationary on this runway by this time to complete the adventure.

The times are reasonable providing you manage to land at first approach. Some of the closer destinations may be a bit tight but you should make up some time on the longer journeys. There should be no need to go flat out all the way to keep to schedule, but if you want to alter the timing then experiment with the division calculation on line 340.

CUSTOMISING THE PROGRAM

The program provided is for the standard FSII program but may be changed to suit other scenery disks. It is only necessary to replace the DATA from line 1000 onward. There must be only one airport for each line of DATA as the program will count the lines of DATA to find out how many destinations are available. The maximum and minimum distances between selections is restricted to reasonable times by DMAX and DMIN so if you want some longer journeys, increase DMAX. At the present, the longest flight times are about 45 minutes.

To increase the number of flights per assignment needs a little more work. Two arrays will need re-dimensioning. JOB array is set to 4 ports and holds the NORTH/EAST co-ordinates. Change the 4 to the number you require. T(4) array is used to store the random selections. This array is checked at line 160 to make sure the same destination is not selected twice, otherwise you may have to take off and land at the same airport. The loops needing adjustment are at lines 100, 140, 160, and 300. Note also the second statement on line 310. If I=4 is looking at the last airport, it can jump past the flying time calculation. This check is repeated on line 440 to jump past the job selection.

The adventure creator should give you even more entertainment from an already compelling program.

```
VENTURE AIR CHARTER Co

*** CHICAGO AREA ***                              WIND-2kts  @ 347'
--------------------------------------------------------------------
CITY            AIRPORT                  NORTH  EAST  F/TIME  T/OFF  ACTUAL
--------------------------------------------------------------------
Chicago.........  Lansing Muni............  17049  16697   27    8.03
FLY WEDDING GUEST to Aurora
--------------------------------------------------------------------
Aurora..........  Aurora Muni.............  17152  16393   23    8.32
DELIVER VALUABLE GEMS to Chicago
--------------------------------------------------------------------
Chicago.........  Merrill C.Meigs.........  17189  16671   19    8.57
VIP CHARTERED FLIGHT to Joliet
--------------------------------------------------------------------
Joliet..........  Joliet Park District....  17038  16490   00    9.16
--------------------------------------------------------------------
```

DISK BONUS: ***This issue's disk contains a bonus program similar to the listing here but based on the Scenery Disk No.7. If you are a Flight Simulator fan don't forget to get a copy!*** ***See page 39 for order details.***

```
WO 1 REM ********************************
IR 2 REM * FLIGHT ASSIGNMENT CREATOR   *
FF 3 REM *   for FLIGHT SIMULATOR II   *
UY 4 REM *        by Les Howarth       *
SR 5 REM * --------------------------- *
KC 6 REM * PAGE 6 MAGAZINE - ENGLAND   *
WU 7 REM ********************************
NN 8 REM
JY 10 DIM A$(82),AP$(30),CITY$(30),CT$(10),D$(30),BL$(21),LN$(82),M$(5),T$(2),JOB(4,2),T(4)
PU 20 A$(1)=" ":A$(82)=" ":A$(2)=A$:A$=""
FG 30 RESTORE 900:READ A$
ZY 50 TRAP 70:RESTORE 990+ND*10
HD 60 READ CITY$:ND=ND+1:GOTO 50
NH 70 ND=ND-1:DIM REJ(ND):DMAX=410:DMIN=100:TRAP 40000
KM 80 BL$=".....................":LN$(1)="-":LN$(82)="-":LN$(2)=LN$
DW 90 REM Initial airport
QR 100 FOR I=1 TO 4:T(I)=0:NEXT I:FT=483:A$(73,76)="    ":LPRINT CHR$(18)
RX 110 B=INT(ND*RND(0)+1):RESTORE 990+B*10
```

```
IV 120 READ CITY$,AP$,N,E:JOB(1,1)=N:JOB(
   1,2)=E:T(1)=B
YK 122 G=INT(11*RND(0)+1):R=INT(360*RND(0
   )):D$=STR$(G):D$(LEN(D$)+1)="kts":M$=S
   TR$(R):M$(LEN(M$)+1)="'"
RY 125 A$(60,64)="WIND-":A$(65,69)=D$:A$(
   70,72)=" @ ":A$(73,76)=M$
RO 130 REM 3 more choices
NQ 140 FOR I=2 TO 4
OA 145 FOR G=1 TO ND:REJ(G)=0:NEXT G
HD 150 R=INT(ND*RND(0)+1):F=0:IF REJ(R)=1
    THEN 150
VB 160 FOR A=1 TO 4:IF T(A)=R THEN F=1:A=
   4
GS 170 NEXT A:IF F=1 THEN 150
ZU 180 RESTORE 990+R*10:READ CITY$,AP$,N,
   E
DN 190 IF ABS(N-JOB(I-1,1))>DMAX THEN REJ
   (R)=1:GOTO 150
ZO 200 IF ABS(E-JOB(I-1,2))>DMAX THEN REJ
   (R)=1:GOTO 150
YO 210 IF ABS(N-JOB(I-1,1))<DMIN THEN F=1
EO 220 IF ABS(E-JOB(I-1,2))<DMIN AND F=1
   THEN REJ(R)=1:F=0:GOTO 150
JU 230 T(I)=R:JOB(I,1)=N:JOB(I,2)=E
ZO 240 F=0:NEXT I
CI 250 LPRINT "ᛊ_ᛊE VENTURE AIR CHARTER C
   o":LPRINT "ᛊFᛊ.":POKE 82,0
TQ 260 LPRINT "ᛊ4";A$;"ᛊ5":LPRINT LN$
DP 270 ? "K";A$(60,76):? :? "CITY    AIRPO
   RT     NORTH  EAST   F/TIME"
DC 280 LPRINT "CITY                AIRPORT
                    NORTH  EAST   F/TI
   ME  T/OFF  ACTUAL"
AS 290 LPRINT LN$
RI 300 FOR I=1 TO 4:RESTORE 990+T(I)*10
NC 310 READ CT$,AP$,N,E:IF I=4 THEN L3=2:
   FT=FT-2:GOTO 350
HT 320 REM Calculate flying times
YB 330 K1=ABS(JOB(I,1)-JOB(I+1,1)):K2=ABS
   (JOB(I,2)-JOB(I+1,2)):L1=K1^2:L2=K2^2
KJ 340 L3=INT(SQR(L1+L2)):L3=INT(L3/11)
CA 350 HI=INT(FT/60):LO=FT-HI*60:M$=STR$(
   HI):M$(LEN(M$)+1)=".":B=LEN(M$)+1
TD 360 M$(LEN(M$)+1)=STR$(LO):IF LO<10 TH
   EN M$(B,B)="0":M$(B+1,B+1)=STR$(LO)
LQ 370 IF LEN(CT$)>15 THEN CITY$=CT$(1,16
   ):GOTO 390
HF 380 CITY$=CT$:CITY$(LEN(CITY$)+1,16)=B
   L$
OS 390 FT=FT+L3:L3=L3-2:T$=STR$(L3):IF L3
   <10 THEN T$(1,1)="0":T$(2,2)=STR$(L3)
BD 400 AP$(LEN(AP$)+1,25)=BL$
EO 410 ? CITY$:? "▸";AP$:? "▸▸    ";N;"  "
   ;E;
SU 420 LPRINT CITY$;"  ";AP$;"    ";N;"  "
   ;E;"    ";T$;"     ";M$;
OX 430 ? "  ";T$;" ";M$
AW 440 IF I=4 THEN 480
EI 450 R=INT(9*RND(N0)):RESTORE 520+R*10:
   READ D$
BH 460 RESTORE 990+T(I+1)*10:READ CT$
TJ 470 ? D$:LPRINT D$;" to ";CT$:LPRINT L
   N$
TZ 480 NEXT I:LPRINT LN$
EY 490 ? "ANOTHER JOB ? ";:INPUT M$:IF M$
   ="Y" THEN 100
UU 500 IF M$<>"N" THEN 490
NW 510 END
GN 520 DATA CHARTER FLIGHT
LF 530 DATA VIP CHARTERED FLIGHT
GV 540 DATA DELIVER URGENT MEDICINE
DD 550 DATA DELIVER MAIL
FW 560 DATA CONSIGNMENT OF MACHINE PARTS
AQ 570 DATA TAKE TRAINEE OUT
GT 580 DATA DELIVER VALUABLE GEMS
YG 590 DATA URGENT ATARI COMPUTERS
BX 600 DATA FLY WEDDING GUEST
CS 900 DATA *** CHICAGO AREA ***
FP 1000 DATA Aurora,Aurora Muni,17152,163
   93
VW 1010 DATA Bloomington,Bloomington-Norm
   al,16593,16246
AB 1020 DATA Champaign,Uni' of Illinois W
   illard,16400,16465
YK 1030 DATA Chicago,Chicago Midway,17156
   ,16628
UD 1040 DATA Chicago,Chicago O'Hare Int'l
   ,17243,16578
QN 1050 DATA Chicago,Lansing Muni,17049,1
   6697
```

THE TUNNEL

A FLIGHT SIMULATOR II

adventure for Washington scenery disk 7

North Position:	16159	**Rudder:**	32767
East Position:	20050	**Ailerons:**	32767
Altitude:	313	**Flaps:**	0
Pitch:	0	**Elevators:**	32767
Bank:	0	**Time:**	12:00
Heading:	290'	**Season:**	4
Airspeed:	0	**Wind:**	6 kts, 300
Throttle:	0		

The area is Washington, and you are parked by the runway at Dulles International Airport. Make sure your picnic basket is packed for lunch by the Shenandoah River.

Tune your NAV to Shawnee VOR, 115.3. The DME will show the distance to this as 34 miles but you will not be flying that far. Set your OBI and taxi to the runway. Before you leave go to radar and zoom out. You will see the Potomac river to your right and a black area in the distance ahead. Take off and climb to 2000ft. Level off and turn to a heading of 325'. We are still aiming for the area of black and you will be flying roughly parallel to the Potomac. Adjust the OBI to keep a check on the direction of Shawnee. When the DME reads 23 miles, the OBI should be 290'.

At this point start to descend. You are aiming to land just at the edge of the area of black. This is about 17 miles from Shawnee. The ground at this point is 300ft, so throttle back and try to land smoothly in the green fields. Once down you will see that the area of black is really a hill. Increase the throttle slightly and keep the aircraft moving towards the hill. Notice that the altitude of the craft does not increase. You are not moving uphill.

Keep looking forward till the DME reads 16 miles. Now look to your left and right. You will see that you are entering a giant cave. Luckily there is a new freeway hacked through this hill. With even more luck you will not meet any oncoming traffic. Otherwise it could get a bit tricky.

As you continue deep into the cave, look to the rear and keep to this view until you see the roof of the tunnel overhead. A little further on switch to a forward view and you should see a little bit of green field ahead. Continue on until you come out into the bright sunshine on the other side of the hill. Now turn to 45' and you should then see the Shenandoah river. For a better look at the scene go to radar. Ahead of you is the river running along the valley and joining the Potomac further along.

Now just cruise along to the river, but steer clear of the apple orchards. Park up and get the picnic basket out. Enjoy your meal!

```
WG 1060 DATA Chicago,Merrill C.Meigs,1718
   9,16671
QG 1070 DATA Chicago B'island,Howel,17100
   ,16627
EI 1080 DATA Chicago Ch'b'g,Schaumburg Ai
   r Park,17247,16515
HM 1090 DATA Chicago West,DuPage,17213,16
   466
WW 1100 DATA Danville,Vermilion Co,16471,
   16685
MR 1110 DATA Dwight,Dwight,16874,16404
IN 1120 DATA Frankfort,Frankfort,17025,16
   596
VY 1130 DATA Gibson City,Gibson City Muni
   ,16594,16461
YG 1140 DATA Joliet,Joliet Park District,
   17038,16490
EN 1150 DATA Kankakee,Greater Kankakee,16
   846,16597
YX 1160 DATA Monee,Sanger,16980,16646
PL 1170 DATA Morris,Morris Muni,17004,164
   13
PK 1180 DATA New Lenox,New Lenox-Howell,1
   7025,16571
SX 1190 DATA Paxton,Paxton,16578,16507
DT 1200 DATA Plainfield,Clow Int'l,17116,
   16502
SJ 1210 DATA Romeoville,Lewis University,
   17081,16518
NR 1220 DATA Urbana,Frasca Field,16448,16
   482
```

FS2 FLIGHT LOG

Mark Hutchinson

JUST AMBLING ACROSS THE KEYBOARD

I have been allowed to indulge myself for the next few issues with a new style of column which just 'chats' to you, the everyday Atari lovers, and I hope that you will find some or these amblings (or ramblings!) interesting . I have had great problems thinking of a title for this new style column, so can I ask for your help? As you read the column see if you can come up with a suitable name that sums up the 'chatty' style and drop me a line. Thanks. Now let's get on with it!

Can you imagine getting up one Saturday, having breakfast at 8 am, then working non stop amid a sea of strange faces until 3 pm, grabbing a tuna and cucumber sandwich and then back amid the sea of faces, surviving until 8 pm before you eat again? Sunday going the same way but without the sandwich and ending up with a whole hour spent loading up a van with heavy boxes while the very air about you drops to freezing point? A new PAGE 6 adventure game? Maybe, read on.

Sometime during the day, it does not matter which day, all the faces blend into one, I suddenly come out of a daze and find myself holding several disks in my trembling hand and staring at someone who is offering me a square of plastic. Who is this man? Why does he want a receipt? Where am I? Why can I not add up numbers? Panic sets in and I look for help. A nightmare come true? INFOCOM unleashes another story? No! The ATARI show strikes back! Try it sometime. Volunteer for the next instalment in March or April and live your own version of a Hammer Horror film!

Seriously though, it is very hard work on the stand and I would like to say thank you to all those people who persevered with waiting to get their PAGE 6 goodies. John Sweeney kindly volunteered for a taste of the action and am I right in saying that John Davidson also volunteered?

I would like to thank all the people who said that it was nice knowing how PAGE 6 came to be. What you read was only part of the trials and tribulations over several years, there is a lot more. ATARI has a full biography, why not PAGE6?

As you may know, I have not received much mail these past few months but my last column has stirred the consciences of more than a few. I was able to talk to a few people while I worked (dare I say slaved?) on the stand at the Palace. I really do enjoy meeting the readers of the magazine on such occasions but I must take this opportunity to apologise to them. When you get, literally, thousands of people trying their best to get served something must go by the board. Anyway, just to mention a few, how did the ST turn out Linda, I hope you decided to keep the 8-bit? Hello Stan, did you decide on the Star? Hello, Mr and Mrs Cook, I received your letter and I do remember the converstaion. I *would* suggest a commercial program but I cannot recommend one so perhaps you could contact one of our advertisers and ask their advice. Finally, sorry Ian, hope you got the badge back. P.S. To T'GG of the 'Gnome at Home' BBS - about the best in the UK in my humble opinion, I really would like to visit the Tower but the Slavemaster really works me hard (he does pay for my meals though!).

I have complained heartily about how hard it was to serve all you people while I slaved on the stand and complained about not getting letters, and in the last column asked what people used their computers for. A couple of letters came in which really did make me think about how important a home computer can be and about how lucky we are to actually attend the madness at the Palace. James Cutler told me that his Atari computer and PAGE 6 have helped him considerably over the years as he is handicapped and semi housebound. The second was from M. Gerum who has a bad heart and who would sorely miss his computer. Both these people are in their sixties in contrast with the usual image of computers, and Atari in particular, of the young person playing arcade games. I have always said that computers should be fun and these two people have proved to me that computers can also be worthwhile companions. It does make me feel somewhat guilty complaining about my little aches and pains incurred at the show when I receive such letters.

Whenever I receive a letter I always read it immediately. It is then set beside my computer so it will be noticeable the next time I feel the urge in my fingertips. I write an answer and store it on disk, sometimes rewriting my response, often adding to it. Many times it is easier to copy an article from a magazine in my library (I keep them all safe and sound in binders). Once in a while I cannot answer the question fully because it is outside my scope but then I try to point the reader to another person or article that may help. Finally I will print out a copy, read it, mark any errors or notes to be added, then get the final version ready. A copy of this is pinned to the original letter and kept somewhere safe and a copy is then sent out with the SAE.

Many times I have written long articles to people explaining certain points and have never heard if they have helped or not. Did I give enough detail? Too much? Too involved? I do not expect you to reply to my answers, all I ask is that if you are still not sure please write again.

As you should know by now, PAGE 6 has taken over ATARI USER and the magazine is in a state of flux as the Editor tries to decide what you want. Thankfully hundreds of people have been good enough to fill in and return the annual survey. For those of you who do not know about this I shall explain. PAGE 6 is run by people dedicated to ATARI, both 8-bit and the ST. We try to give you, the reader, the best we can. To do this properly we need to know what you want in your magazine, yes, YOUR magazine, not a one-of-many publication! If you do not have a survey form or, more specifically, if you have previously read only ATARI USER, please write to the Editor and let him know your system, likes and dislikes of the magazine and what you would like to read about in future editions.

Having indicated that there may be a few changes there is a very strong rumour that the 'Readers Write' page will be expanded to include more specific queries. Now have a guess who has been volunteered for that job?

By the time you get to read this it will be well past Christmas so I hope it has been a pleasant one for you all.

As always you can write to me at the following address.

Mark Hutchinson,
1, Hollymount,
Erinvale,
Finaghy,
Belfast BT10 0GL

DISK BONUS

COLOUR ENHANCER

a graphics utility by David Blackshaw

Colour Enhancer allows you to create new pictures or enhance existing Micropainter, Atari Artist and other GR15 picture files. The program will work with files which have been stored in either the normal 62 sector format or in the special space saving compressed format used by Atari Artist. Colour Enhancer allows a choice of four different colours on each display line allowing 128 colours to be used in the same screen.

Pictures may be enhanced using either a joystick or Touch Tablet and and a few simple key strokes. The program is intelligent and will automatically load pictures in either normal, compressed or enhanced format. Pictures can be saved in either normal or enhanced format.

Although written for use with other painting programs such as Micropainter or Atari Artist, Colour Enhancer has both a plotting mode a line drawing mode and a fill mode and so can be used on its own to create new pictures without the need for any other painting program.

GETTING STARTED

To load insert the disk in drive A and boot as any other disk. The program will operate on 400, 800, XL or XE machines but requires a full 48K to run. Hold down the OPTION key when using XL or XE machines and removal of all cartridges on other machines. After the title screen has appeared, press START to go to the drawing screen.

Initially the program is in joystick mode indicated by a flashing cursor in the centre of the screen. The cursor can be moved around the screen using the joystick, pressing the fire button will cause a line to be plotted as the cursor moves. You may toggle between joystick and Tablet mode by hitting 'J' on the keyboard. In Tablet mode the screen is initially blank with the cursor only appearing when the stylus is touching the tablet. In this mode drawing is achieved by pressing the stylus button whist moving it over the tablet. Anyone who is familiar with either Micropainter or Atari Artist will feel at home with Colour Enhancer even though a number of commands have been slightly altered.

An explanation of all of the available commands is given below. Unless mentioned otherwise the action of the command is the same in both Joystick and Tablet mode.

GENERAL COMMAND

SPACE BAR - Will switch between the picture screen and the Option Menu and exits many of the command modes. When in Touch Tablet mode the Option Menu may also be entered by pressing the stylus button with the pen OFF the tablet.

PAINTING COMMANDS

1-4 - Selects the paint pot from which the colour will be obtained. All painting is carried out using solid colours.

C - Allows the colour in each of the four paint pots to be changed. Pressing 'C' followed by '1' selects pot number 1 to be changed. After the pot has been selected changes are made by pressing the arrow keys

UP ARROW - Increases colour one step
DOWN ARROW - Decreases colour one step
LEFT ARROW - Decreases luminance one step
RIGHT ARROW - Increases luminance one step

Exit this mode by moving the joystick or hitting the spacebar. Colours may be changed on either the paint screen or via the Option Menu. See below for additional instructions for changing colours when in DLI mode.

D - Selects Line Draw mode which is indicated by the Line Draw cursor. Chose the point to start your line and press either the joystick or stylus buttons. Release the button and move cursor to the point you want the end of the line to be and press the button again. A line will be drawn between the two points using the colour from the current paint pot

P - Returns from draw mode to plot mode

E - Erases picture but not any DLI's which have been set. Provided that no other commands have been used the picture may be restored by pressing 'U'

F - Fill Mode. Fills an enclosed area with colour from the selected paint pot. Use the BREAK key to stop the fill at any time

J - Toggles between Joystick and Touch Tablet mode

U - Undo. This will undo the last plot, draw or fill restoring the picture to its previous form

Arrow Keys - The cursor may be moved by the arrow keys in the joystick mode (do NOT press CONTROL or SHIFT). Pressing the joystick button at the same time allows plotting to take place. This is useful when greater accuracy is required than can be achieved using the joystick.

SPECIAL DLI KEYS

A - Add or remove DLI colour change points. This option is only available when DLI'S have been activated by pressing 'E' whilst in the Option Menu.

The cursor will change to an 'A' with an arrow through it and can be moved with either the joystick or stylus. Pressing the pen or joystick button activates a DLI colour change point at the cursor position which will be indicated by the DLI marker. Pressing the button whilst pointing to any active DLI will turn it off and the marker will disappear. Use the spacebar to exit this mode.

C - The use of this key is changed slightly in DLI mode since colour changes are made to selected parts of the screen rather than the whole. Each of the four paint pots can be changed but the colours selected will only change in the area of screen between two selected DLI'S.

Pressing 'C' with DLI'S activated illuminates the DLI markers and the cursor changes to a 'C' with an arrow through it. Move the cursor to the area of picture you wish to change and press the stylus or fire button to select this area. Colour changes can now be made to the four colour paint pots by pressing 1 - 4 and the four arrow keys. Colours only change between the upper and lower DLI markers in the area of the cursor.

After colour changes have been made to one area of the picture another area can be selected by pressing the fire button again, moving the cursor to the new location and selecting this area by once again pressing stylus or fire button. Exit by either moving the joystick or pressing the Space Bar.

An additional command is available to change the top border colour. After selecting 'C' press 'B' and the arrow keys to change the colour in the top border area.

Move the joystick or press the spacebar to exit this mode.

OPTION MENU

The option menu allows pictures to be loaded and saved or the disk directory to be read. In addition the DLI mode can be activated and the colours currently in use seen or changed as desired. Follow the on screen instructions to use the various functions.

E - Enables or disables DLI'S. Note that any DLI'S that have previously been set will be erased if this option is used but your drawing will remain intact. A previously saved Enhanced picture will switch the DLI's on when loading

S - saves your picture to disk with your selected filename. Note that an extender is not required as the program automatically adds .PIC. The screen will blank whilst the picture is being saved

L - Loads a previously saved picture with a PIC extender. The picture may be in either standard, compressed or enhanced format. No need to worry which as the program will automatically adjust to the correct format. The screen will blank during the load process

I - Enables an index of pictures to be displayed. Names are displayed one at a time. Use the spacebar to scroll through them. Pressing any other key will exit without reading further titles

Colour Enhancer is the Bonus program on this Issue's disk and comes with three example picture files. Disk subscribers will have received a copy with the magazine but the disk, which contains all the other programs from this issue ready to run, may be purchased separately for just £2.95. Send your cheque or Postal Order to PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Overseas readers should add 50p to cover postage.

MUSIC BOX

by Kristofer Andersson

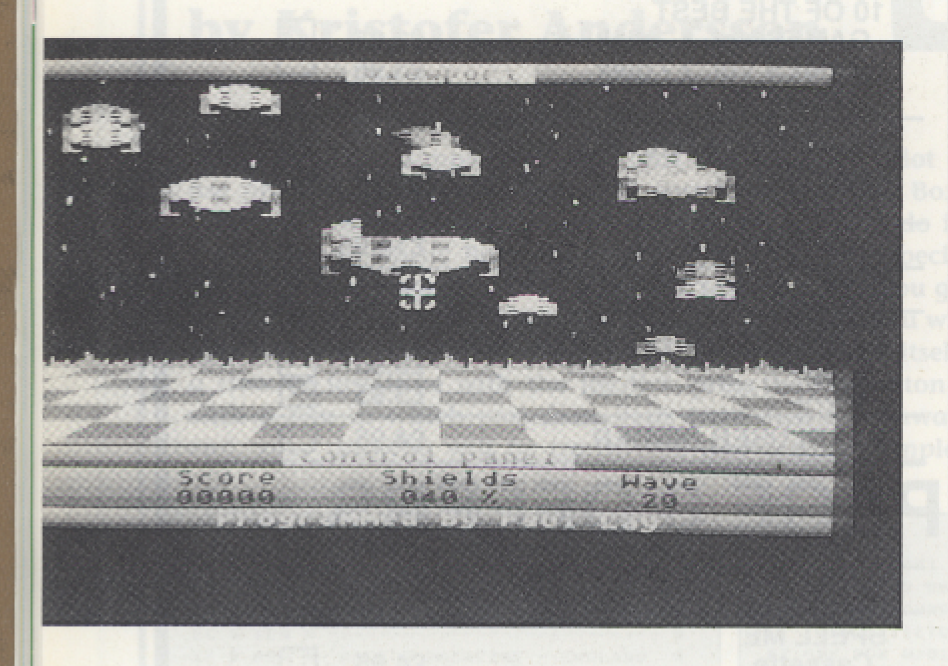
Sometimes the simplest of programs can be quite a lot of fun, although simple to use programs are not always that easy to write! Music Box is a nice straightforward program that plays what you draw, all you have to do is draw a graph in the box provided and Music Box will turn it into your own special tune!

Type in the program using TYPO III to check it as you go and SAVE a copy to disk or CSAVE to cassette. When you run the program, you will be asked for your name and will find a special tune played as the program sets itself up. Now choose between a slow or fast tune with the joystick, press the fire button and you will be presented with a box in which you draw your tune. Just draw away and when you get to the end, your drawing will be transposed into a tune! Simple, yet great fun.

```
EI 1 REM ********************************
NF 2 REM *        ** MUSICBOX **        *
RQ 3 REM *              by              *
CA 4 REM * Kristofer Andersson, Sweden *
EC 5 REM * ---------------------------- *
IZ 6 REM *  PAGE 6 MAGAZINE - ENGLAND   *
EO 7 REM ********************************
IO 10 READ Q0,Q1,Q2,Q3,Q4,Q5,Q6,Q7,Q8,Q9,
   Q10,Q11,Q12,Q13,Q14,Q15,Q16,Q17,Q18,Q1
   9,Q21,Q22,Q29,Q30,Q31,Q32,Q47,Q48,Q64
DZ 12 READ Q77,Q81,Q100,Q121,Q125,Q162,Q2
   00,Q243,Q251,Q254,Q257,Q270,Q400,Q501,
   Q503,Q585,Q595,Q752,Q800
BN 14 DATA 0,1,2,3,4,5,6,7,8,9,10,11,12,1
   3,14,15,16,2000,5000,19,21,22,29,30,31
   ,32,47,48,64,77,81,4100,121,125,162
JK 16 DATA 1200,243,4251,4254,4255,4270,3
   400,3500,4500,3585,3595,752,4800
UJ 80 GOTO 90
UT 85 POKE 1791,255:K=Q0:FOR I=Q0 TO Q7:I
   F PEEK(I+204*256)=Q0 THEN NEXT I:RETUR
   N
VY 86 POKE 756,192:RETURN
BN 90 DIM M$(Q3),N$(Q21),BE$(Q21),PT(Q22)
   :FOR I=Q1 TO Q22:READ K:PT(I)=K:NEXT I
CB 200 GRAPHICS Q0:GOSUB 85:SETCOLOR Q2,Q
   2,Q1:SETCOLOR Q4,Q0,Q0:? :? :? "▸      
     MUSICBOX              "
TO 220 ? :? :? "                        
                ":? :? "▸  Maestro, what's yo
   ur name?":? :? :? :? :? "▸  ========";
IO 221 ? "=========="
PG 250 ? :? :? "▸  I will start to
   ":? "▸    play your name.... ":?
LP 255 ? "    Press RETURN when you're rea
   dy"
FY 263 POSITION Q4,Q6:FOR I=Q1 TO Q13:? "
   █";CHR$(Q30);CHR$(Q29);:NEXT I
RW 266 POSITION 35,Q6:FOR I=Q1 TO Q13:? "
   █";CHR$(Q30);CHR$(Q29);:NEXT I:? CHR$(
   28);:? :? "                          ";
EW 267 ? "            "
EM 285 POSITION Q8,Q11:INPUT N$:BE$=N$:PO
   KE Q752,Q1:? " ":POSITION Q8,Q11:? " "
HS 300 FOR X=Q21 TO Q1 STEP -Q1:IF N$(X,X
   )=" " THEN NEXT X
FR 310 IF X>Q0 THEN BE$=BE$(Q1,X)
NI 330 IF X=Q0 THEN X=Q11:N$="ATARI - APX
   ":BE$="Your ATARI"
PU 350 IF X<Q21 THEN FOR I=Q1 TO Q21-X:N$
   (X+I)=N$(I,I):NEXT I
OP 505 SOUND Q1,Q243,Q10,Q3:SOUND Q2,Q121
   ,Q10,Q3:SOUND Q3,Q243,Q10,Q3:FOR X=Q1
   TO Q21
XT 525 IF X=Q7 THEN K=Q3:I=Q1:J=Q162:GOSU
   B Q200
UK 530 IF X=Q12 THEN K=Q5:I=Q2:J=96:GOSUB
    Q200
NS 535 IF X=Q16 THEN K=Q7:I=Q1:J=Q81:GOSU
   B Q200
RE 540 IF X=Q19 THEN K=Q9:I=Q3:J=60:GOSUB
    Q200
FS 545 IF X=Q21 THEN K=Q13:I=Q2:J=Q47:GOS
   UB Q200
VO 550 M$=STR$(ASC(N$(X))):K1=LEN(M$):K2=
   VAL(M$(K1,K1)):SOUND Q0,PT(K2+Q8),Q14,
   Q4:FOR W=Q1 TO X+88:NEXT W:NEXT X
KB 580 SOUND Q0,Q162,Q10,Q4:SOUND Q1,108,
   Q10,Q3:SOUND Q2,Q64,Q10,Q2:SOUND Q3,45
   ,Q10,Q1:SETCOLOR Q2,Q2,Q15
FZ 600 FOR W=Q1 TO 444:NEXT W
LH 1010 DIM MM(Q48),MM1(Q48),MM2(Q48),OM(
   Q48),RV(Q48),RV1(Q48),RV2(Q48),HV(Q22,
   Q3),PZ(Q22),MH(Q8),MH1(Q8),MH2(Q8)
XP 1090 L0=Q22:L9=Q48:XX=L9/Q8
BG 1121 DATA 243,217,193,182,162,144,128,
   121,108,96,91,81,72,64,60,53,47,45,40,
   35,31,29
FE 1140 FOR I=Q1 TO Q22:READ K:PZ(I)=K:NE
   XT I
ZC 1146 DATA 1,1,3,3,5,5,8,8,8,10,10,12,1
   2,15,15,15,17,17,19,19,22,22
OR 1155 FOR J=Q1 TO Q3:FOR I=Q1 TO Q22:RE
   AD K:HV(I,J)=K:NEXT I:NEXT J
UO 1171 DATA 1,0,1,0,1,0,0,1,0,1,0,1,0,0,
   1,0,1,0,1,0,0,1
VE 1172 DATA 1,0,0,1,0,1,0,1,0,0,1,0,1,0,
   1,0,0,1,0,1,0,1
TZ 1173 DATA 0,1,0,0,1,0,1,0,1,0,0,1,0,1,
   0,1,0,0,1,0,1,0
FI 1190 GOTO Q17
ZS 1200 SOUND I,J,Q10,Q3:SETCOLOR Q2,Q2,K
AO 1212 RETURN
IJ 1500 SOUND Q0,PT(Q1),Q10,Q2:FOR X=Q1 T
   O L9:RV1(X)=Q0:NEXT X:FOR X=Q1 TO L9 S
   TEP A*RX:RV1(X)=Q1:NEXT X
NU 1520 SOUND Q0,PT(Q2),Q10,Q2:FOR X=Q1 T
   O L9 STEP B*RX:RV1(X)=Q1:NEXT X:RV1(L9
   )=Q0:FOR X=Q1 TO L9:RV2(X)=Q0:NEXT X
VV 1555 A2=A*A:K1=Q1:K2=Q1:FOR I=Q0 TO IN
   T((L9+A)/A2):FOR X=K1 TO K1+A2 STEP A*
   RX:IF X>L9+A OR X<A THEN 1568
ZG 1567 RV2(X-A)=Q1
FG 1568 NEXT X:FOR J=Q0 TO A-B:SOUND Q0,P
   T(Q7+(INT((I+J)/Q2)=(I+J)/Q2)),Q10,Q2:
   FOR X=K2 TO K2+A*B STEP B*RX
QY 1576 IF X>L9+A OR X<A THEN 1578
ZJ 1577 RV2(X-A)=Q1
VG 1578 NEXT X:K2=K2+A:NEXT J:K1=K1+A2:K2
   =K1:NEXT I:RV2(L9)=Q0
CU 1599 RETURN
HX 2000 REM
DM 2002 GRAPHICS Q16:SETCOLOR Q2,Q7,Q3:SE
   TCOLOR Q4,Q7,Q3:POKE Q752,Q1:? CHR$(Q1
   25):SOUND Q0,Q243,Q10,Q1:SOUND Q1,Q121
   ,Q10,Q
IR 2014 SOUND Q2,Q81,Q10,Q1:SOUND Q3,Q47,
   Q10,Q1:POSITION Q7,Q2:? "Start to tell
    the rythm  :":POSITION Q5,Q8
HQ 2050 ? "   SLOW  ............  FAST ":
   POSITION Q12,Q12:? "USE JOYSTICK":POSI
   TION Q3,20
SE 2090 ? "Press red button when you're r
   eady .":POSITION Q19,Q7:? "*";:FOR W=Q
   1 TO 111:NEXT W:SR=Q1:RC=Q6:FR=Q12
SZ 2091 I=Q19
EL 2120 IF STRIG(Q0)=Q0 THEN 2200
IW 2130 FOR W=Q1 TO Q11:NEXT W:K=STICK(Q0
   ):IF K=Q7 AND RC<FR THEN RC=RC+Q1:POSI
   TION I,Q7:? " ":I=I+Q1:POSITION I,Q7:?
    "*";
SJ 2160 IF K=Q11 AND RC>SR THEN RC=RC-Q1:
   POSITION I,Q7:? " ":I=I-Q1:POSITION I,
   Q7:? "*";
PJ 2170 GOTO 2120
IB 2200 REM
RS 2201 POKE Q77,Q0:GOSUB 4596:IF RC=Q1 T
   HEN A=Q8:B=Q3:RX=Q2
FD 2215 IF RC=Q2 THEN A=Q7:B=Q3:RX=Q2
DF 2220 IF RC=Q3 THEN A=Q5:B=Q3:RX=Q2
DP 2225 IF RC=Q4 THEN A=Q4:B=Q3:RX=Q2
BM 2230 IF RC=Q5 THEN A=Q3:B=Q2:RX=Q2
EI 2235 IF RC=Q6 THEN A=Q6:B=Q1:RX=Q2
GU 2240 IF RC=Q7 THEN A=Q8:B=Q3:RX=Q1
HE 2245 IF RC=Q8 THEN A=Q7:B=Q3:RX=Q1
FG 2250 IF RC=Q9 THEN A=Q5:B=Q3:RX=Q1
BJ 2255 IF RC=Q10 THEN A=Q4:B=Q3:RX=Q1
ZF 2260 IF RC=Q11 THEN A=Q3:B=Q2:RX=Q1
CE 2265 IF RC=Q12 THEN A=Q6:B=Q1:RX=Q1
GJ 2275 GOSUB 1500:SOUND Q0,Q0,Q0,Q0:GRAP
   HICS Q4:SETCOLOR Q2,Q2,Q2:SETCOLOR Q4,
   Q6,Q4:COLOR Q1:PLOT Q15,Q8:DRAWTO Q64,
   Q8:GOS
AC 3215 DRAWTO Q64,Q31:DRAWTO Q15,Q31:DRA
   WTO Q15,Q8:FOR I=Q1 TO L9:IF RV1(I) TH
   EN PLOT I+Q15,Q32
GJ 3240 NEXT I:POKE Q752,Q1:? :? :? :? "▸
      DRAW YOUR MELODY NOW!":? :X=Q1:PY=Q
   8:MM(X)=PY:PLOT X+Q15,Q31-MM(X)
FM 3320 SOUND Q0,PT(MM(X)),Q14,Q6
IZ 3333 REM
TA 3335 K=STICK(Q0):IF K=Q7 THEN DY=Q0:GO
   SUB Q400
VK 3345 IF K=Q6 THEN DY=Q1:GOSUB Q400
MK 3350 IF K=Q5 THEN DY=-Q1:GOSUB Q400
YJ 3355 IF K=Q14 THEN DY=Q1:GOSUB Q501
RD 3360 IF K=Q13 THEN DY=-Q1:GOSUB Q501
PD 3365 IF K=Q11 THEN GOSUB 3600
GE 3380 SOUND Q0,PT(MM(X)),Q14,Q6
IG 3390 IF X>=L9 THEN GOTO 3900
UA 3395 GOTO 3333
IG 3400 REM
DH 3401 POKE Q77,Q0:PY=MM(X)+DY:IF PY<Q1
   THEN PY=Q1
TG 3430 IF PY>L0 THEN PY=L0
FI 3440 X=X+Q1:MM(X)=PY:PLOT X+Q15,Q31-MM
   (X)
CE 3495 RETURN
II 3500 REM
KA 3501 POKE Q77,Q0:MM(X)=MM(X)+DY:IF MM(
   X)<Q1 THEN MM(X)=Q1
JO 3515 IF MM(X)>L0 THEN MM(X)=L0
ZE 3520 IF DY=-Q1 THEN GOTO 3555
WA 3525 IF MM(X)>PY THEN GOTO Q585
MT 3530 COLOR Q0:PLOT X+Q15,Q31-(MM(X)-Q1
   ):DRAWTO X+Q15,Q31-Q1:COLOR Q1
KO 3550 GOTO Q595
VH 3555 IF MM(X)<PY THEN GOTO Q585
WX 3560 COLOR Q0:PLOT X+Q15,Q31-(MM(X)+Q1
   ):DRAWTO X+Q15,Q31-L0:COLOR Q1
KZ 3580 GOTO Q595
BD 3585 PLOT X+Q15,Q31-MM(X)
CG 3595 RETURN
IK 3600 REM
XK 3601 POKE Q77,Q0:PX=X:IF X>Q1 THEN X=X
   -Q1
BR 3620 PY=MM(X):COLOR Q0:PLOT PX+Q15,Q31
   -Q1:DRAWTO PX+Q15,Q31-L0:COLOR Q1:PLOT
    X+Q15,Q31-MM(X)
CI 3695 RETURN
IM 3700 REM
SW 3710 FOR I=Q1 TO Q48:COLOR Q0:PLOT I+Q
   15,Q31-Q1:DRAWTO I+Q15,Q31-L0:PLOT I+Q
   15,Q32:COLOR Q1:PLOT I+Q15,Q31-MM(I):N
   EXT I
CK 3795 RETURN
IO 3800 REM
UD 3810 FOR X=Q1 TO Q48:IF RV(X)=Q1 THEN
   SOUND Q1,Q0,Q0,Q0
QH 3830 SOUND Q1,PT(MM(X)),Q10,Q5:COLOR Q
   0:PLOT X+Q15,Q31-MM(X):COLOR Q1:FOR W=
   Q1 TO Q22:NEXT W:PLOT X+Q15,Q31-MM(X):
   NEXT X
JC 3870 SOUND Q1,Q0,Q0,Q0
CM 3895 RETURN
HW 3900 ? :? :? :? ,"HMMM..."
CM 3905 SOUND Q0,Q0,Q0,Q0:FOR X=Q1 TO L9:
   OM(X)=MM(X):RV(X)=RV1(X):NEXT X:GOSUB
   Q800:GOSUB 3700:GOSUB 3800
ET 3990 ? :? :? "     SHUT UP! THE COMPOSI
   TOR IS WORKING":? :FOR X=Q1 TO L9:MM1(
   X)=MM(X):NEXT X:GOSUB Q100
ZS 4015 FOR I=Q1 TO Q8:MH1(I)=MH(I):NEXT
   I:FOR X=Q1 TO L9:MM(X)=OM(X):NEXT X:GO
   SUB 5500:FOR X=Q1 TO L9:RV(X)=RV2(X):N
   EXT X
OT 4035 GOSUB Q800:FOR X=Q1 TO L9:MM2(X)=
   MM(X):NEXT X:GOSUB Q100:FOR I=Q1 TO Q8
   :MH2(I)=MH(I):NEXT I
BZ 4075 ? :? "MOVE THE JOYSTICK TO HEAR Y
   OUR SONG ":?
EW 4090 IF STRIG(Q0)=Q1 AND STICK(Q0)=Q15
    THEN 4090
```

```
MH 4094 ? :? :POKE 657,016-LEN(BE$)/02
ZP 4095 ? BE$;"s melody":GOTO 018
IB 4100 REM
YT 4110 TC=00:SC=00:DC=00:TV=00:SV=00:DV=
   00:FOR X=01 TO L9:MX=INT((X-01)/XX):SO
   UND 00,PT(OM(X)),010,02
ZV 4135 IF MX=00 OR MX<>(X-01)/XX THEN 42
   75
VS 4140 IF TV>SV AND TV>DV THEN GOTO 0251
AG 4145 IF SV>TV AND SV>DV THEN GOTO 0254
AN 4150 IF DV>TV AND DV>SV THEN GOTO 0257
MI 4155 IF TV=SV AND SV=DV THEN 4200
OX 4160 IF TV=SV AND TC<=SC THEN GOTO 025
   1
NM 4165 IF TV=SV THEN GOTO 0254
WV 4170 IF TV=DV AND TC<=DC THEN GOTO 025
   1
JX 4175 IF TV=DV THEN GOTO 0257
LC 4180 IF SV=DV AND SC<DC THEN GOTO 0254
JR 4185 IF SV=DV THEN GOTO 0257
WQ 4200 IF TC<SC AND TC<DC THEN GOTO 0251
BE 4205 IF SC<TC AND SC<DC THEN GOTO 0254
BL 4210 IF DC<TC AND DC<SC THEN GOTO 0257
YA 4215 IF TC=SC AND SC=DC THEN GOTO 0251
SH 4220 IF TC=SC THEN GOTO 0251
MD 4225 IF TC=DC THEN GOTO 0251
RP 4230 IF SC=DC THEN GOTO 0257
LS 4251 TC=TC+01:MH(MX)=01:GOTO 0270
OG 4254 SC=SC+01:MH(MX)=04:GOTO 0270
GQ 4255 DC=DC+01:MH(MX)=05:GOTO 0270
ZI 4270 TV=00:SV=00:DV=00
IU 4275 TV=TV+HV(MM(X),01):SV=SV+HV(MM(X)
   ,02):DV=DV+HV(MM(X),03):NEXT X:SOUND 0
   0,00,00,00:MH(08)=01
CR 4299 RETURN
IJ 4500 REM
GN 4505 FOR X=01 TO L9:MX=INT((X-01)/XX)+
   01:GOSUB 4610:IF MX<>((X-01)/XX)+01 TH
   EN 4555
OB 4525 IF MH=01 THEN H1=01:H2=05:H3=010
TM 4530 IF MH=04 THEN H1=01:H2=06:H3=011
NW 4535 IF MH=05 THEN H1=02:H2=05:H3=09
MT 4540 SOUND 01,00,00,00:SOUND 02,00,00,
   00:SOUND 03,00,00,00
ZX 4555 IF RV=01 THEN SOUND 00,00,00,00
VA 4560 SOUND 00,PT(MM),014,06:COLOR 00:P
   LOT X+015,031-01:DRAWTO X+015,031-L0:S
   OUND 01,PT(H1),010,02:SOUND 02,PT(H2),
   010,02
BK 4580 SOUND 03,PT(H3),010,02:FOR W=01 T
   O 05:NEXT W:COLOR 01:PLOT X+015,031-MM
   :NEXT X
QV 4596 SOUND 01,00,00,00:SOUND 02,00,00,
   00:SOUND 03,00,00,00:SOUND 00,00,00,00
AO 4600 RETURN
IO 4610 REM
AY 4615 IF SS<>01 THEN 4630
ZS 4620 MM=MM1(X):RV=RV1(X):MH=MH1(MX)
UI 4626 GOTO 4640
CG 4630 MM=MM2(X):RV=RV2(X):MH=MH2(MX)
BA 4640 RETURN
IP 4800 REM
WR 4810 I=01
LI 4815 IF RV(I)=00 THEN MM(I)=MM(I-01)
DZ 4820 I=I+01:IF I<=048 THEN 4815
TM 4830 I=048
QU 4835 I=I-01:IF MM(I)=MM(I+01) THEN 483
   5
SC 4840 I=I+01:MM(I)=PZ(MM(I))
DX 4845 IF I<048 THEN GOTO 4840
CK 4848 RETURN
IA 5000 REM
FF 5001 POKE 077,00:SS=01:GOSUB 0503:SS=0
   1:GOSUB 0503:SS=02:GOSUB 0503:SS=01:GO
   SUB 0503:GOSUB 9900
VZ 5092 IF X=00 THEN GOTO 018
GU 5099 GOTO 017
IK 5500 REM
GX 5510 TX=00:BX=L0:FOR X=01 TO L9:SOUND
   00,PT(OM(X)),014,01:IF MM(X)>TX THEN T
   X=MM(X)
EO 5530 IF MM(X)<BX THEN BX=MM(X)
YQ 5535 NEXT X:CX=((TX-BX)/02)+BX:FOR X=0
   1 TO L9:Z=MM(X):SOUND 00,PT(OM(X)),014
   ,01:IF Z>CX THEN MM(X)=Z-INT((Z-CX)/02
   )
JG 5580 IF Z<CX THEN MM(X)=Z+INT((CX-Z)/0
   2)
YP 5590 NEXT X:SOUND 00,00,00,00
CY 5599 RETURN
IW 9900 REM
PO 9920 ? :? :? :? "▸    RED BUTTON --- NE
   W SONG":? "▸MOVE JOYSTICK --- REPEAT":
   X=-01
NX 9940 IF STICK(00)<>015 THEN 9975
XU 9945 IF STRIG(00)<>01 THEN 9970
YL 9955 GOTO 9940
BB 9970 X=X+01
IX 9975 X=X+01:POKE 077,00
CU 9995 RETURN
HY 9999 END
```

STAR RIDER



Admit it! Paul Lay's latest space shoot out is just too fast for you - you are doomed!

Your planet is being attacked by hordes of alien space craft and it seems you are the last hope of survival. You sit behind the controls of a Surface Runner vehicle which glides over the surface of the planet at an incredible speed. You are protected by a force field and armed with a limitless supply of photon missiles. You are the STAR RIDER.

The object is to blast as many of the alien spacecraft as you can, without letting them get past you. Every time you hit an alien your score is increased and your shields are boosted, however when an alien gets past you it zaps your shields making your Surface Runner vehicle shudder. The game is over when your shields have gone. You will find STAR RIDER fast and furious especially at the higher levels, if you ever get that far!

TYPING IT IN

STAR RIDER is a single player, all machine code arcade style game for any 8-bit Atari with at least 48k RAM and will run from both cassette and disk. Just type in the listing, using TYPO III to check for mistakes as you go and save a copy of the listing before you run it.

The program you have typed in will create a boot disk or tape so you will need a new tape or a formatted disk. Load the program, if it is not already in memory, and RUN it. The listing will check the DATA statements and tell you if there are any errors. You will be asked whether you want to create a Cassette or Disk version, make sure that your cassette or disk is ready and answer accordingly. A bootable version of the game will be created.

To run the cassette version, rewind the tape and switch your machine on with the START button held down. The disk version can be run from DOS option L or the program can be renamed to AUTORUN.SYS when it will run automatically as the computer is switched on, providing that you have written the DOS files to your disk.

STAR RIDER CONTROLS

START	**begins a game at wave 1**
1, 2, 3, 4, 5	**begin a game at levels 10, 20, 30, 40, 50 respectively**
T	**Toggles vertical control of the joystick**
ESC	**aborts the game**
SPACEBAR	**Pauses/resumes a game**

Use joystick in port 1 to manoeuvre the crosshair sights and press the trigger to fire a photon missile.

HIGH SCORES

If you manage to survive that far, you will be able to enter your name on the high score screen. Moving the joystick left and right will move the cursor in the appropriate direction and moving the joystick up and down moves forwards and backwards through the characters. When your name is complete, press the trigger and your name will be entered. On subsequent high scores, the name entered appears as a default to save you entering your name each time.

STAR RIDER

```
WO 1 REM ******************************
QJ 2 REM *         STAR RIDER         *
ZC 3 REM *                            *
QJ 4 REM *   Programmed by Paul Lay   *
ZE 5 REM *                            *
SS 6 REM * -------------------------- *
CV 7 REM *  PAGE 6 MAGAZINE, ENGLAND  *
WV 8 REM ******************************
GG 9 REM *
JT 10 GRAPHICS 0:DIM CODE$(97),HEX(22):DA
   TA 0,1,2,3,4,5,6,7,8,9,0,0,0,0,0,0,0,1
   0,11,12,13,14,15
GT 20 FOR I=0 TO 22:READ J:HEX(I)=J:NEXT
   I:? :? "STAR RIDER":WRITING=0:? :? "**
   * CHECKING DATA"
UN 30 TRAP 90:RESTORE 1000:FOR LINE=1000
   TO 2580 STEP 10:? "LINE ";LINE;:CS=0
WG 40 READ CODE$:IF LINE<>PEEK(183)+256*P
   EEK(184) THEN ? " MISSING!":END
FC 50 IF LEN(CODE$)<>96 THEN 90
BI 60 FOR I=1 TO 95 STEP 2:BYTE=16*HEX(AS
   C(CODE$(I))-48)+HEX(ASC(CODE$(I+1))-48
   )
LI 70 IF WRITING THEN PUT #1,BYTE:NEXT I:
   READ TOTAL:? :NEXT LINE:CLOSE #1:? :?
   "*** FILE CREATED":END
TC 80 CS=CS-BYTE:NEXT I:READ TOTAL:IF ABS
   (CS-1000*INT(CS/1000))=TOTAL THEN ? :N
   EXT LINE:GOTO 100
SY 90 ? " BAD DATA":END
IU 100 ? :? "*** CREATE FILE":? "C...CASS
   ETTE (BOOT)":? "D...DISK (BINARY LOAD)
   ":POKE 764,255
GW 110 K=PEEK(764):IF K=255 THEN 110
HU 120 POKE 764,255:IF K=58 THEN 150
AP 130 ? "READY CASSETTE AND PRESS RETURN
   ";:OPEN #1,8,128,"C:":? :RESTORE 180
IM 140 FOR I=1 TO 6:READ J:PUT #1,J:NEXT
   I:? :? "*** WRITING FILE":WRITING=1:GO
   TO 30
WB 150 ? "INSERT DISK WITH DOS AND PRESS
   RETURN";:POKE 764,255
GR 160 IF PEEK(764)<>12 THEN 160
XG 170 POKE 764,255:OPEN #1,8,0,"D:AUTORU
   N.SYS":? :RESTORE 190:GOTO 140
XT 180 DATA 0,60,247,31,0,0
XE 190 DATA 255,255,253,31,198,61
KM 1000 DATA 4CD7260000000000000000000000
   0030F3FFFF00303C3CFFFFFFFF0000000C0CCF
   CFFF0000000B0A8A7969000CD4DDE4,931
IB 1010 DATA EEF4FFCCC9D7D5E7E9FFF9CC9C7D
   5D7E9EFF9F00C04DDD4EEE4FFF000000B0A0A8
   979659595060708090 99F40F040E00,73
LH 1020 DATA 000000F7F5E7E9DD0D00007F5F7E
   9EDDD000004FF040E000000000959505060708
   0999000000000C0DAE9F00000ABBCC,23
PP 1030 DATA 0DEE0F0000A0BBCCD0EEF0000000
   00C0D0EAF98F7E8090A0BB0000FF0DCC0B0000
   0000FFD0CCB000000000F8E708090A,894
LE 1040 DATA BB0000000D009F809DA0BBCCDDEE
   FFEEDDCC0000D000F908D90ABB000000000000
   000000000000000000000000000000,549
ZO 1050 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000000000,0
ZR 1060 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000000000,0
ZU 1070 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000000000,0
VI 1080 DATA 0000000000000000000000000000
   00000000000381828181838181828381828183
   818381818281828381838181818381,238
CA 1090 DATA 8181828183818382818381FFFF00
   0003FFFFFF000001FFFFFF000001FFFFFF0000
   01FFFFFF000001FFFFFF000001FFFF,720
MV 1100 DATA FF8000FFFC00000FFFFFFE000007
   FFFFFE000001FFFFFF000001FFFFFF800000FF
   FFFFC000007FFFFFF000FFE000007F,460
MM 1110 DATA FFFFF800000FFFFFFC000003FFFF
   FF000000FFFFFFC000003FFFFFF000001FFFFF
   FE00FF000001FFFFFFE000003FFFFF,314
ZE 1120 DATA F8000003FFFFFF000000FFFFFFE0
   00001FFFFFFC000003FFFFFFE0F8000007FFFF
   FF8000007FFFFFF0000007FFFFFF00,413
SZ 1130 DATA 00007FFFFFF0000007FFFFFF0000
   00FFFFFFFCC000003FFFFFFE000000FFFFFFE0
   000007FFFFFF0000007FFFFFF80000,669
PC 1140 DATA 03FFFFFFC000001FFFFFFF000000
   FFFFFFF8000003FFFFFFC000000FFFFFFF0000
   003FFFFFFC000001FFFFFFF0000007,653
AL 1150 DATA FFFFFF000007FFFFFFE0000007FF
   FFFF8000000FFFFFFF0000003FFFFFFE000000
   7FFFFFFC000000FFFFFF00001FFFFF,537
RV 1160 DATA FF8000001FFFFFFF0000001FFFFF
   FF0000001FFFFFFF0000003FFFFFFF0000003F
   FFFF0000FFFFFFFE0000003FFFFFFE,902
IP 1170 DATA 0000001FFFFFFF0000001FFFFFFF
   8000000FFFFFFFC0000007FFFF0003FFFFFFF8
   000000FFFFFFFC0000003FFFFFFF00,930
LL 1180 DATA 00000FFFFFFFC0000007FFFFFFF0
   000001FFFF001FFFFFFFE0000001FFFFFFF800
   00003FFFFFFF0000000FFFFFFFE000,639
LP 1190 DATA 0001FFFFFFFC0000003FFF007FFF
   FFFF80000007FFFFFFF00000007FFFFFFF0000
   0007FFFFFFF0000000FFFFFFFF0000,708
YQ 1200 DATA 000FFF01FFFFFFFE0000000FFFFF
   FFE00000007FFFFFFF00000007FFFFFFF80000
   003FFFFFFFC0000001FF0FFFFFFFF8,490
ZP 1210 DATA 0000003FFFFFFFC0000000FFFFFF
   FF00000003FFFFFFC0000001FFFFFFFF00000
   007F3FFFFFFFE00000007FFFFFFF80,705
OK 1220 DATA 000000FFFFFFFF00000003FFFFFF
   FE00000007FFFFFFF80000000FFFFFFFFC000
   0000FFFFFFFF80000001FFFFFFFF00,542
HD 1230 DATA 000001FFFFFFFE0000003FFFFFF
   FE00000003FFFFFFFF0000003FFFFFFFF0000
   0001FFFFFFFF00000001FFFFFFFF00,870
IP 1240 DATA 000001FFFFFFFF80000000FFFFFF
   FC0000007FFFFFFFE0000003FFFFFFFF0000
   0000FFFFFFFF800000007FFFFFFFE0,521
VT 1250 DATA 000000FFFFFFF00000001FFFFFFF
   FC0000003FFFFFFFF00000000FFFFFFFFC000
   00003FFFFFFFF8000000FFFFFFC000,679
QC 1260 DATA 00003FFFFFFFF800000007FFFFFF
   FF00000007FFFFFFFE00000000FFFFFFFFE00
   0000FFFFFF00000000FFFFFFFF000,722
HC 1270 DATA 000007FFFFFFFF000000007FFFFF
   FFF00000007FFFFFFFF800000FFFFFC000000
   01FFFFFFFFE00000000FFFFFFFFF00,644
SC 1280 DATA 0000003FFFFFFFF800000001FFFF
   FFFFE00000FFFFF000000007FFFFFFFFC00000
   000FFFFFFFFF000000003FFFFFFFFC,595
TX 1290 DATA 00000000FFFFFFFF80000FFFFC0
   0000000FFFFFFFF800000001FFFFFFFFF0000
   00001FFFFFFFFE000000003FFFFFFF,938
HJ 1300 DATA FE0000FFFF000000003FFFFFFFFF
   000000001FFFFFFFFF000000001FFFFFFFFF00
   0000001FFFFFFFF8000FFFC000000,365
PQ 1310 DATA 007FFFFFFFFE000000003FFFFFFF
   FF000000000FFFFFFFF800000007FFFFFFFF
   E000FFF000000000FFFFFFFFC0000,590
FK 1320 DATA 00003FFFFFFFFF00000000FFFFF
   FFFFC000000003FFFFFFFF800FFC000000003
   FFFFFFFFF8000000007FFFFFFFFF00,554
LZ 1330 DATA 00000007FFFFFFFFE000000001FF
   FFFFFFFE00FF0000000007FFFFFFFF0000000
   007FFFFFFFFF000000007FFFFFFFFF,778
KG 1340 DATA F0000000007FFFFFFFF80FC0000
   00001FFFFFFFFE00000000FFFFFFFFF0000
   000003FFFFFFFF800000003FFFFF,839
HR 1350 DATA FFFFE0303070F042682942007402
   0202020202020202020202024490214FB8210F
   0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F,618
AY 1360 DATA 0F0F0F0F0F0F0F0F0F0F0F0F0F0F
   00429029000202000241902 6A95A8502A93885
   03A9028509A9008D44028DEB008DEC,85
HF 1370 DATA 0085D4A9018DE200A9038D0FD28D
   1DD0A9488D0802A9308D0902A9408D0ED2A978
   8D07D4A9808D0ED4A93E8D00D42078,794
OA 1380 DATA 312009342050302037 28A9008D00
   D4A9908D02D4A9268D03D4A95F8D0002A9288D
   0102A9DE8D13D0A93C8D14D0A98C8D,251
BM 1390 DATA 15D0209836A204BD0A289D16D0CA
   10F7206B31A9008DFE008DFF008D08D2A2029D
   D000CA10FAA9FF8DF4008DF9008DE6,202
EL 1400 DATA 008DE800A9788DF2008DF300A910
   8DF3298DF429A2049DE729CA10FAA9118DF229
   A9048D0F28203728A93E8D00D4ADE2,383
JM 1410 DATA 008DE300202B28203D2820372820
   542B200F2E203D28203728204328203A2C20CE
   2E203D28203728200F2E20B12F20B7,364
GD 1420 DATA 30203D28203728204328203A2C20
   CE2E203D28ADE300D0C2203728201228ADE200
```

continued overleaf

STAR RIDER

```
   C9FFF0A91869018DE200D0A1000C00,841
BQ 1430 DATA 460000444AA201BDFE29186901C9
   1AF0049DFE2960A9109DFE29CA10EA60A20020
   122BE8ECE200D0F760AD0BD4D0FB60,356
YU 1440 DATA AD0BD4F0FB60AE0F28E8E005D010
   AD102848AD11288D1028688D1128A2018E0F28
   60488A489848A28B8E0AD48E18D0CA,870
FS 1450 DATA E083D0F5A941A2208D0AD48D1BD0
   8E09D4AD6F7848A26EBD00788D0AD48D04D09D
   01788E12D0CAD0EE688D0178A9008D,919
UR 1460 DATA 0AD48D04D0A9018D0AD48D1BD0A2
   088E0AD4CAD0FAAD1028AC11288D17D08C18D0
   AE0F288E0AD4CAD0FA8D18D08C17D0,123
DX 1470 DATA A2058E0AD4CAD0FA8D17D08C18D0
   A2068E0AD4CAD0FA8D18D08C17D0A2078E0AD4
   CAD0FA8D17D08C18D0A2088E0AD4CA,456
VN 1480 DATA D0FAAE0F28E004F00E8D18D08C17
   D08E0AD4E8E004D0F8A90C8D0AD48D17D0A28B
   A9E08D0AD48E18D08D09D4CA8E0AD4,532
CE 1490 DATA 8E18D0CAE083D0F5A9008D0AD48D
   17D0A2CB8E0AD48E18D08E0AD4CAE0C3D0F2A9
   0C8D0AD48D17D0A28B8E0AD48E18D0,219
UF 1500 DATA CAE083D0F568A868AA6840000000
   000000000000000000000000D6F6E9E5F7F0EF
   F2F4C2000000000000000000000000,948
RF 1510 DATA 0000000000000000000000000000
   00D6E3EFEEF4F2EFEC80F0E1EEE5ECC2000000
   000000000000000000000000000000,631
UO 1520 DATA 000033636F726500000000003368
   69656C647300000000000376176650000000000
   000000000000000000101010101000,389
FV 1530 DATA 000000000001110100005000000
   00000001011000000000000000000000000000
   00000030726F6772616D6D65640022,873
TB 1540 DATA 79003061756C002C617900000000
   0000000008A48A90085CDA5F10A26CD0A26CD
   0A26CD85CEA6CD86CF0A26CD0A26CD,808
XT 1550 DATA 1865CE85CCA5CD65CF85CDA5CC18
   65F085CC9002E6CDA5CC18690085CCA5CD6974
   85CD68AA6020302AA909186DFF00A0,682
HM 1560 DATA 0591CC38E9018810F8A90F186DFF
   00A02D91CC38E90188C027D0F66020302AA913
   186DFF00A00391CC38E9018810F8A9,554
LL 1570 DATA 17186DFF00A02B91CC38E90188C0
   27D0F66020302AA91A186DFF00A00291CC38E9
   018810F860A9004820302A68A00591,51
KO 1580 DATA CC8810FBA02D91CC88C027D0F960
   A9004820302A68A00391CC8810FBA02B91CC88
   C027D0F960A9004820302A68A00291,291
YX 1590 DATA CC8810FB60AD0AD2293FC92310F7
   9DC73DA90E9DC73EA9FF9DC73FA9209DC740AD
   0AD2297F9DC74160D0034C032BC901,206
QJ 1600 DATA D0034CEB2A4CD32AD0034CBF2AC9
   01D0034C992A4C732AA2008EE700BDC740C903
   30622910D01DBDC7402920F00FDEC7,838
AI 1610 DATA 41D00AA9009DC740A9099DC741E8
   ECE200D0D960DEC741301FA9178DFF00BDC73D
   85F0BDC73E85F1BDC7402903204528,875
SV 1620 DATA A9008DFF004C7A2BBDC73D85F0BD
   C73E85F1BDC740290320362BA9039DC740CEE3
   004C7A2BBDC73D85F0BDC73E85F1BD,822
PO 1630 DATA C74020362BDEC741D01DA9099DC7
   41FEC740BDC740C903300E206A2FA9048DE600
   20122B4C7A2BBDC73E187DC73F9DC7,771
RN 1640 DATA 3E85F18DE700D005A9019DC73FAD
   0AD2C919B00ABDC73DF016DEC73D1011AD0AD2
   C919B00ABDC73DC922F003FEC73DBD,924
MV 1650 DATA C73D85F0BDC74020452B4C7A2BAD
   10D0D01AADFE00F018A9008DFE00ADF4001003
   4C132DADF90010064C892D8DFE00A0,811
HS 1660 DATA 0FAEF300A9009D007DE88810F9AD
   00D3290F85CCAEEB00F012A20086EF4A26EF4A
   26EFA5CC29FC05EF85CC46CCB009AD,928
GU 1670 DATA F30038E9088DF30046CCB009ADF3
   001869088DF30046CCB009ADF20038E9088DF2
   0046CCB009ADF2001869088DF200AD,559
JH 1680 DATA F200C930B007A9308DF2001009C9
   C99005A9C88DF200ADF300C928B007A9288DF3
   001009C9B19005A9B08DF300A00FAE,335
YR 1690 DATA F300B9032D9D007DE88810F6ADF2
   008D01D08DD00060005492921010 10EEEE1010
   1092925400A5F238E9304A4A4A8DF5,726
PZ 1700 DATA 00A9B038E5F34A4A4A8DF600A908
   8DF400A9308DF700A9B08DF800A9048DE8004C
   6D2DADF400100160A00FAEF800A900,545
XL 1710 DATA 9D007EE88810F9ADF700186DF500
   8DF700ADF80038EDF6008DF800CEF400301BA0
   0FAEF800B9FF2D2D0AD29D007EE888,26
TG 1720 DATA 10F3ADF7008D02D08DD10060A9C8
   38E5F24A4A4A8DFA00A9B038E5F34A4A4A8DFB
   00A9088DF900A9C88DFC00A9B08DFD,460
KP 1730 DATA 00A9048DE8004CE32DADF9001001
   60A00FAEFD00A9009D007FE88810F9ADFC0038
   EDFA008DFC00ADFD0038EDFB008DFD,158
VG 1740 DATA 00CEF900301BA00FAEFD00B9FF2D
   2D0AD29D007FE88810F3ADFC008D03D08DD200
   60183C7E7E7EFFFFFFFFFFFF7E7E7E,613
OD 1750 DATA 3C1820602E20972E20402D4CB62D
   38E9284A4A4A8DE100ADE00038E9304A4A38FD
   C73D186901302348BDC740A868D95A,385
SF 1760 DATA 2E1018ADE10038FDC73E18690130
   0CD95D2E1007A9088DE9003860186003040601
   0202A5F4F00160A200BDC740C90330,924
ND 1770 DATA 07E8ECE200D0F360A5F785E0A5F8
   201B2E901420E92E20462FBDC74009109DC740
   A9089DC741604C6E2EA5F9F00160A2,105
LR 1780 DATA 00BDC740C9033007E8ECE200D0F3
   60A5FC85E0A5FD201B2E901420E92E20462FBD
   C74009109DC740A9089DC741604CA5,295
AD 1790 DATA 2EA200AD0AD22903A8BD202039E5
   2E9DD820E8E0B6D0EC60000FF0FFADF229C911
   F049A5E238E90129F84A4A4AC90430,77
EM 1800 DATA 02A903A8B93E2F8DE400B9422F8D
   E500ADF429186DE400C91A3006EEE50038E90A
   8DF429ADF329186DE500C91A300EA9,758
BO 1810 DATA 118DF229A9108DF3298DF429608D
   F3296002050000000000102A004B9E729186905
   C91A301338E90A99E72988300EB9E7,509
GM 1820 DATA 29186901C91A10ED99E7296060A0
   02B9F22938E904C910101318690A99F2298830
   0EB9F22938E901C91030ED99F22960,992
YB 1830 DATA A9108DF2298DF3298DF42920C436
   204A31A203A9009D40309D4430CA10F7A2009A
   4C2127AEE600301BBD15308D9026BD,49
XG 1840 DATA 1A308D00D28D4030BD1F308D01D2
   8D4430CEE600ADE7008D02D28D41308D03D28D
   4530AEE8003015BD24308D04D28D42,76
IL 1850 DATA 30BD29308D05D28D4630CEE800AE
   E9003015BD2E308D06D28D4330BD37308D07D2
   8D4730CEE9006030204010500080B0,260
ZH 1860 DATA D0E0008284868800A08C7830008A
   8C8EC600F0E6DCD2C8BEB4AA00888A8C8C8E8E
   8E8C00000000000000000AD09D28DEA,423
DC 1870 DATA 006840207834200637A9FF85EAAD
   1FD0C906D004A200F022A5EAC92DD00BADEB00
   49FF8DEB004C5630C912F01EA205DD,414
XS 1880 DATA 9F30F006CAD0F84C5A30BDA53085
   E2BDAB308DFF29BDB1308DFE29A9FF85EA4C4A
   31FF1F1E1A181D010A141E28321110,650
GF 1890 DATA 1010101010111213141 5A5EAC91C
   D0034C982FC92DD00BA5EB49FF85EBA9FF85EA
   60C921D076204A31203728A9858D02,976
DQ 1900 DATA D4A9318D03D4A9408D1BD0A9E08D
   1AD0A202A9009D01D0CA10FAA9FF85EAA9058D
   08D2A9A68D01D28D05D2A9808D00D2,655
JH 1910 DATA A9408D04D220C031A5EAC921D0F7
   203728A9908D02D4A9268D03D4A9018D1BD0A9
   008D1AD0A202BDD0009D01D0CA10F7,211
OG 1920 DATA A9FF85EAA9008D08D220553160A2
   07A9009D00D2CA10FA60A203A006BD40309900
   D2BD44309901D2CA888810EF60A900,492
LC 1930 DATA 85DEA97485DFA2044C8A36A90085
   DEA96885DFA2084C8A367070704F00680F0F0F
   0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F,190
DV 1940 DATA 0F0F0F0F0F0F0F0F0F0F0F0F0F0F
   0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F41
   8531203728A20DBD513285EDBD5F32,947
LZ 1950 DATA 85EEBD9D328DE2318DAB328DE331
   8A48A200A000BDFFFF91EDA5ED18692885ED90
   02E6EEE8E018D0EB68AACA10CAA20D,30
CY 1960 DATA BD42329D4332CAD0F7A6ECE030D0
   04A20086ECBD6D328D4332E6ECA20DBD433230
   11BD5132187D43329D5132901 4FE5F,341
IX 1970 DATA 32D00FBD5132187D43329D5132B0
   03DE5F32CA10D8600000000000000000000000
   0000003D3E3F404142434445464748,979
FZ 1980 DATA 494A6A6A6A6A6A6A6A6A6A6A6A6A
   6A6A00000002828282 8D8D8D8000002828285 0
   507888B0B0D8D8D80000000028507888,433
HO 1990 DATA B0D8000002828282828288 8B0D800
   0000B9D1E9011931496179 91A9C1D9F1323232
   333333333333333333333300000000,171
QL 2000 DATA 8899AABBCCDDEEFFFFEEDDCCBBAA
   99000000000000000000008899AABB000D0E000F
   0E0D0CBBAA9900000000000000000000,771
HK 2010 DATA 8899AABBCC0D0EFFFFEEDDCCBBAA
```

STAR RIDER

```
   99000000000000000000008899AABBC00D0E000F
   0E0D0CBBAA99000000000000000000,11
OU 2020 DATA 8899AABBCC0D0E0F0F0E0D0CBBAA
   99000000000000000000008899AABB0C0D0E0F0F
   0E0D00BBAA99000000000000000000,292
AN 2030 DATA 8899AABB0C0D0E0F0F0E0D0CBBAA
   99000000000000000000008899AABB000D0E00FF
   EEDD00BBAA99000000000000000000,839
SU 2040 DATA 8899AABB0CDDEE0F0F0E0D0CBBAA
   99000000000000000000008899AABB000D0E000F
   0E0D00BBAA99000000000000000000,79
EQ 2050 DATA 8899AABB0CDDEEFFFFEEDD0CBBAA
   99000000000000000000008899AABB000D0E0F0F
   0E0D00BBAA99000000000000000000,152
QE 2060 DATA 8899AABBCC0D0E0F0F0E0DCCBBAA
   99000000000000000000008899AABBCCDDEEFFFF
   EEDDCCBBAA990000000000A90085DE,836
OT 2070 DATA A95085DFA20B208A36A205BD6034
   85DCBD663485DDBD6C3485DEBD723485DF8A48
   C9043004A20F1002A227A005B1DC91,459
DN 2080 DATA DE8810F9A5DC18690685DC9002E6
   DDA5DE18692885DE9002E6DFCA10DE68AACA10
   B960473727170767393A3B3C3D3D58,442
QK 2090 DATA 0E146A171D505050505757204A31
   203728A9C98D02D4A9348D03D4A9D28D0002A9
   358D0102A9D08D18D0A98C8D19D0A9,240
WC 2100 DATA 058D08D2A9AA8D01D28D03D2A9A6
   8D05D28D07D2A9008DDB00A9278DDC00A9018D
   C336209836A9008DC336607070F04F,448
TF 2110 DATA 00500F0F0F0F0F0F0F0F0F0F0F0F
   0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F
   0F0F0F0F0F0F0F0F0F0F0F0F0F0F0F,230
GV 2120 DATA 0F0F0F0F0F0F0F0F0F0F0F0F0F0F
   70421E3570067006700670067006700241C934
   000000000000000000000000000000,507
NQ 2130 DATA 282927280033232F322533000000
   00000000000000000000000000007061676500
   160000001011101010000000000000,53
DG 2140 DATA 7061676500160000001010151010
   00000000000070616765001600000010101215
   100000000000007061676500160000,523
BX 2150 DATA 0010101110100000000000007061
   67650016000000101010150000000000000000
   000000000030726F6772616D6D6564,393
QG 2160 DATA 002279003061756C002C61790000
   00000000000000488A48A2E0A9418D0AD48E1A
   D08D1BD0A23CBD00788D0AD48D04D0,949
KB 2170 DATA 8E12D0DE00788A4A9003DE0078CA
   D0E78E0AD48E1AD0A9018D1BD0A26D8A0A8D0A
   D48D17D01869408D16D0BD3C788D04,430
HT 2180 DATA D08E12D0DE3C788A4A9003DE3C78
   CAD0DC8E04D0CEDB001028AEDC00E028D002A2
   00BD62368D00D21869018D02D24A8D,376
QB 2190 DATA 04D21869018D06D2E88EDC00A907
   8DDB0068AA6840486E4A6F486E4A6F407E427F
   407E427F486E4A6F486E4A6F407E42,237
AC 2200 DATA 7F407E427F404A545E3E48525CA0
   009891DEC8D0FBE6DFCAD0F660A90085DEA97D
   85DFA203208A36A200AD0AD2ACC336,784
LM 2210 DATA D008C92F90F4C9CFB0F09D0078A9
   019D007BE8D0E56000A9C885D38D0AD4AD0AD2
   29708D9026A040A203AD0AD29D04D0,736
FM 2220 DATA 9D12D0CA10F48D0CD08D11D02907
   AAAD0AD229EF9D00D288D0DEC6D3D0CDA9308D
   9026A9008D0CD060A5D4F02EA95285,569
LI 2230 DATA D5A93585D6A200A000B1D5D9E729
   9018D005C8C005D0F2A5D518691485D59002E6
   D6E8E005D0E0604C3B37E6D46086D9,258
NP 2240 DATA A98285D5A93585D6A90438E5D9AA
   F024A5D518691485D7A5D6690085D8A013B1D5
   91D78810F9A5D538E91485D5B002C6,218
ME 2250 DATA D6CA10DAA94985D5A93585D6A5D9
   0A0A481865D585D59002E6D6680A0A1865D585
   D59002E6D6A007B95238AABD2D3891,952
LW 2260 DATA D58810F4A5D518690985D7A5D669
   0085D8A004B9E72991D78810F8A000201B38A9
   FF91D5201B38B95238AABD2D3891D5,0
JD 2270 DATA AD10D0F043AD00D3290FC907D009
   C8C00830DAA00010D6C90BD0078810CFA00710
   CBC90DD00CB9523838E9011014A924,915
KX 2280 DATA 1010C90ED0B7B95238186901C925
   3002A9009952384CBA37AD10D0F0FB60203728
   203D28203728203D282037284C3D28,36
WA 2290 DATA 006162636465666768696A6B6C6D
   6E6F707172737475767778797A505152535455
   565758590000000000000000A9008D,998
RA 2300 DATA 00D48D0ED28D0ED48D08D2A9038D
   0FD2A9A98D02D4A9388D03D4A9788D09D4A90C
   8D17D0A9008D18D0A9238D00D4A90E,399
YJ 2310 DATA 8D01D28D03D2A2018E00D2E88E02
   D2A27FAD0AD29D0078CA10F730F342E7380242
   E7380242E7380242E7380242E73802,703
VE 2320 DATA 42E7380242E7380242E7380242E7
   380242E7380242E7380242E7380242E7380242
   E7380242E73841A938000102030405,147
JC 2330 DATA 060708090A0B0C0D0E0F00010203
   0405060708090A0B0C0D0E0F00010203040506
   0708090A0B0C0D0E0F08090A0B0C0D,592
IR 2340 DATA 0E0F000102030405060708090A0B
   0C0D0E0F000102030405060708090A0B0C0D0E
   0F00010203040506070FFFFFFFFF50,588
RN 2350 DATA FFFFFFFFFFF5FFFFFFFFFFF5FFFF
   FFFFFFF5EEEEEEEEEEE6EEEEEEEEEEE6EEEEEE
   EEEEE6EEEEEEEEEEE6DDDDDDDDDDD7,440
GU 2360 DATA DDDDDDDDDDD7DDDD700DDDD7DDDD
   700DDDD7CCCC80000000CCCC80000000CCCC80
   000000CCCC80000000BBBBBBBBBB90,451
ZS 2370 DATA BBBBBBBBBBB9BBBBBBBBBBB9BBBB
   BBBBBBB9AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
   AAAAAA0AAAAAAAAAAA00000009999B,403
AD 2380 DATA 00000009999B00000009999B0000
   0009999B8888C008888C8888C008888C888888
   88888C88888888888C77777777777E,192
SK 2390 DATA 77777777777E77777777777E7777
   7777777E66666666666F66666666666F666666
   66666F06666666666F0FFFFFFFFFF6,799
OZ 2400 DATA FFFFFFFFFFF6FFFFFFFFFFF6FFFF
   FFFFFFF6EEEEEEEEEEE7EEEEEEEEEEE7EEEEEE
   EEEEE7EEEEEEEEEEE7DDDDDDDDDDD8,432
JA 2410 DATA DDDDDDDDDDD8DD80DDD80DD80000
   DDD800000000CCC900000000CCC900000000CC
   C900000000CCC900000000BBBA0000,234
UI 2420 DATA 0000BBBA00000000BBBA00000000
   BBBA00000000AAAB00000000AAAB00000000AA
   AB00000000AAAB00000000999C0000,208
PP 2430 DATA 0000999C00000000999C00000000
   999C00000000888D00000000888D0000000088
   8D00000000888D00000000777E0000,720
YG 2440 DATA 0000777E00000000777E00000000
   777E00000000666F00000000666F0000000066
   6F00000000666F00000FFFFFFFFF60,282
AR 2450 DATA 0FFFFFFFFF60FFFFFFFFFFF6FFFF
   FFFFFFF6EEEEEEEEEEE7EEEEEEEEEEE7EEEEEE
   EEEEE7EEEEEEEEEEE7DDDDDDDDDDD8,822
SP 2460 DATA DDDDDDDDDDD8DDDD800DDDD8DDDD
   800DDDD8CCCC900CCCC9CCCC900CCCC9CCCC90
   0CCCC9CCCC900CCCC9BBBBA00BBBBA,845
CZ 2470 DATA BBBBA00BBBBABBBBA00BBBBABBBB
   A00BBBBAAAAAAAAAAAABAAAAAAAAAAABAAAAAA
   AAAAABAAAAAAAAAAAB9999C009999C,346
NN 2480 DATA 9999C009999C9999C009999C9999
   C009999C8888D008888D8888D008888D8888D0
   08888D8888D008888D7777E007777E,778
WF 2490 DATA 7777E007777E7777E007777E7777
   E007777E6666F006666F6666F006666F6666F0
   06666F6666F006666FFFFFFFFFFF60,835
WE 2500 DATA FFFFFFFFFF60FFFFFFFFFFF6FFFF
   FFFFFFF6EEEEEEEEEEE7EEEEEEEEEEE7EEEEEE
   EEEEE7EEEEEEEEEEE7DDDDDDDDDDD8,582
SC 2510 DATA DDDDDDDDDDD8DDDD800DDDD8DDDD
   800DDDD8CCCC900CCCC9CCCC900CCCC9CCCC90
   0CCCC9CCCC900CCCC9BBBBA00BBBBA,845
QL 2520 DATA BBBBA00BBBBABBBBA00BBBBABBBB
   A00BBBBAAAAAAAAAAAB0AAAAAAAAAB00AAAAAA
   AAAB00AAAAAAAAAAB09999C009999C,676
NA 2530 DATA 9999C009999C9999C009999C9999
   C009999C8888D008888D8888D008888D8888D0
   08888D8888D008888D7777E007777E,778
JG 2540 DATA 7777E007777E7777E007777E7777
   E007777E6666F006666F6666F006666F6666F0
   06666F6666F006666F088888888888,518
SU 2550 DATA 999999999999AAAAAAAAAAAABBBB
   BBBBBBBBC00CC000C00CD0D0DD0DD0D0E0E0EE
   0EE0E0F00FFF0FF0F0F0F0FF0FF0F0,891
VG 2560 DATA E0E0EE0EE0E0D0D0DD0DD0D0C0C0
   C000C00CBBBBBBBBBBBBAAAAAAAAAAAA999999
   999999088888888888888888880000,714
AL 2570 DATA 999999999000AAAAAAAAA000BBBB
   BBBBB000C000C00CC000D0DDD0D0D000E0EEE0
   E0E000F00FF00FF000F0FFF0F0F000,740
PS 2580 DATA E0EEE0E0E000D0DDD0D0D000C000
   C0C0C000BBBBBBBBB000AAAAAAAAA000999999
   999000888888888000E002E102FD1F,244
```

9 THE RIGHT TIMING

Ian Finlayson tells you how to slow down or time your programs

There are quite a few aspects of timing which are important to the programmer whether at a simple or advanced level. In many 'arcade action' games, for instance, timing can be highly critical and quite small changes in the speed of response of the computer can change a game from being slow and boring to being so fast it is almost unplayable. Machine code games are difficult to modify unless you are a highly proficient programmer, but you can experiment with many of the Basic games such as those listed in the magazines. I have tried speeding up some lethargic Basic games by using Turbo Basic and have even used the Turbo Basic Compiler which gives startling results and usually makes the games unplayable unless careful time delays are inserted. The most critical item is the movement of the cursor or player around the screen using the joystick - this requires plenty of hand/eye coordination which with a typical, fairly insensitive, joystick makes control impossible when speed is radically increased.

To fine tune a game it is best to program it initially to be too fast to play and then slow it down with delay functions. The most common sort of delay is a FOR-NEXT loop such as 'FOR DELAY=1 TO 1000:NEXT DELAY' - this gives a delay of about 2.2 second depending on where it is in the program. Such a loop can be adjusted easily and can be set with different values to achieve different skill levels but remember that this sort of delay will vary with its position in your program listing. The delay will be shorter if it is early in the listing and longer if it is at the end of a substantial programme.

If you need very small delays you can use a dummy function to occupy a little computer time. For example 'DELAY=LOG(10)' takes about 0.13 seconds. This may not appear significant, but it is quite a long time in computer terms. Basic's various arithmetic and trigonometric functions provide a range of possible delays.

EVENT TIMING

Injecting delays into a program as described above is useful, but does not provide a suitable method for timing activities as the delay itself fully utilises the computers central processor - nothing else can be going on while the delay is in force. Fortunately the Atari has several timers to control various activities like refreshing the TV screen, timing input/output activities etc. and these timers can be accessed from Basic using PEEK and POKE.

The most readily accessed timer is located in memory locations 18, 19 and 20 and is known as the Real Time Clock. The clock 'ticks' every fiftieth of a second and this interval is called a Jiffy. Watch out if you read American books or magazines on this subject as their computers have a different timing rate - a US Jiffy is one sixtieth of a second because their TV screens refresh 60 times a second unlike our 50Hz system. The Jiffy count is in memory location 20 and this goes from 0 to 255. On the next count after 255 (after 5.12 seconds) location 20 resets to zero and location 19 is incremented by 1. Similarly when location 19 increments past 255 (after approximately 22 minutes) it resets to zero and location 18 increments by 1. By the time location 18 is full the clock has been running for about 93 hours, so you are unlikely to need to worry about what happens to your timer when the three registers all reset to zero!

```
YL 32019 REM **          PAGE 6          **
             ** SUBROUTINE TUTORIAL-9 **
             **          TIMING          **
KN 32020 POKE 20,0:POKE 19,0:POKE 18,0:RE
   TURN :REM **   RESET THE TIMERS    **
ZS 32021 REM ****************************
             **   READ THE TIMERS     **
             ****************************
BI 32022 JIF=PEEK(18)*65536+PEEK(19)*256+
   PEEK(20)
CB 32024 HRS=INT(JIF/125000):MINS=INT((JI
   F-HRS*125000)/3000):SECS=INT((JIF-HRS*
   125000-MINS*3000)/50)
WO 32026 ? "ELAPSED TIME - ";HRS;" HOURS,
    ";MINS;" MINUTES, ";SECS;" SECONDS.":
   RETURN
```

THE LISTING

The real time clock can be used in two slightly different ways. Either you reset the clock to zero at the beginning of the timing and read it at the end (like using a stop watch) or you read at the beginning and at the end of the timed event and work out the difference. I have chosen the former, but the latter could be better if you are timing several overlapping events (as with a split timer), and do not want to reset the clock.

Line 32020 - resets the timers to zero in a one line subroutine.
Line 32022 - reads the three registers and calculates the total number of Jiffies elapsed. If you are only timing fairly short events (up to 22 minutes) you can simplify the procedure to use locations 19 and 20 only.
Line 32024 - here Jiffies are converted into Hrs, Mins and Secs. If you are timing long events you will probably find that the real time clock is not very accurate. You can test it against a stop-watch and apply a correction factor at the end of line 32022 if you wish. My machine runs slightly slow and 'JIF=JIF*1.0027' improves things a little.
Line 32026 - prints out the elapsed time and then returns to the main program. In a real program you would probably not print your result as part of the sub routine but return to the main program and use the elapsed time there.

USES

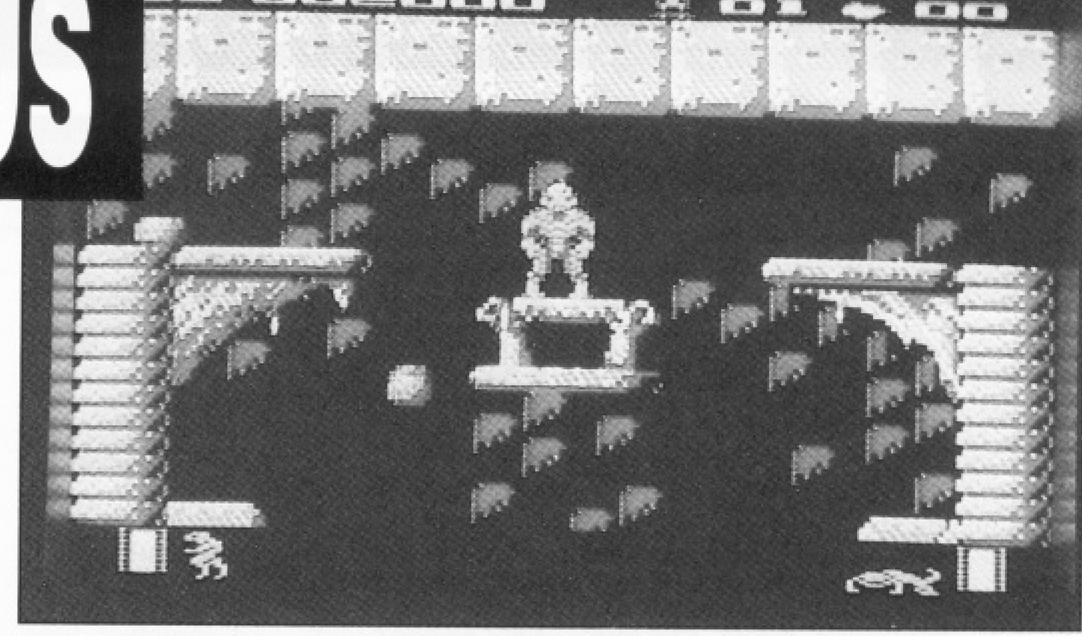
Playing against the clock can make quite ordinary games more challenging - instead of just striving to finish you have to finish as quickly as possible and beat your own best performance. Several players can compete to see who is fastest thus introducing a competitive element into one-player games.

AND FINALLY..

Before I sign off for this issue I must congratulate Les on his terrific effort in keeping Page 6 alive. I also endorse his recent editorial remarks - It is you the reader that keeps the magazine going, and all of us who contribute regularly need the stimulus of your opinions and enquiries if we are to keep the content lively and interesting. You can write to me as follows

Ian Finlayson,
60 Roundstone Crescent,
East Preston,
West Sussex BN16 1DQ

DRACONUS



And now for something completely different ... Forget about all those mediocre 'budget' offerings you've been forced to put up with in recent months - Cognito's DRACONUS belongs to an entirely different class of software: First class!

You may not be surprised to learn that the 'Cognito' label is connected with Zeppelin Games whose previous Atari releases - Speed Ace and Zybex - have both enjoyed chart-topping popularity. Ian Copeland is the author of DRACONUS (he was also responsible for Gun Law, Space Hawk and Transmuter) and the project was coordinated by Brian Jobling who himself has provided the Atari with some top-notch games. Add to this team a wizzo computer musician called Adam Gilmore plus a graphics genius - Michael Owen - and it's clear that the Cognito label is definitely no exception to Zeppelin's policy of providing computer gamers with software of the highest possible standards. In fact, it could well become THE 8-bit label of 1989!

If you haven't already rushed off to dust the cobwebs from your cheque book then you may be wondering what this widely publicised game is all about. It's basically a futuristic arcade adventure set on a distant Alien planet where a dreaded tyrant beast is said to reside. The general aim is to rid the planet of this particular nasty being and thus allow peace and tranquillity to return. We're not told if that's what the Alien population actually want, but then, writing ingenious plots does not seem to be one of Zeppelin's many aptitudes! The instructions don't say very much at all so you have to wait for the mysteries to unfold as you undertake a perilous journey through the Labyrinthine complex. Terrortoads, Catepelose and balls of 'gooey matter' dripping incessantly from the cavern ceilings are just a few of the terrifying nasties designed to hinder your progress by sapping your energy on contact. To help you overcome the numerous problems, many artefacts and magical spells may be collected at certain locations, including Energy Crystals which replace lost strength and a Necromancer's staff (let's hope the Necromancer won't miss them!). Knowing when to use these resources to maximum advantage is one of the major factors governing success.

There are two separate and physically contrasting characters to control at different stages in the game. 'Frognum' takes the leading role and excels at jumping, walking, punching, ducking and breathing visually spectacular streams of fire at the adversaries. Just as important though is 'Draconewt', an aquatic creature who enjoys blowing water jets to disable the opposition. For the metamorphosis to occur you must first have located a Morph slab and be carrying a Morph Helix. Obvious, when you think about it!

Initially, the task of progressing any further than the very first screen seems quite daunting - the quantities and frenetic movements of the various nasties are almost overwhelming until you get accustomed to the slightly awkward procedure of spitting fire jets to obliterate them. You rapidly learn to be as sparing as possible with this facility though when you realise that ten blasts is the maximum allowed before a flask of fizzy flame fluid (try saying that after a few drinks!) must be collected to replenish the supply. If you run out completely you dramatically increase the probability of energy loss and only two 'reserve' characters are provided. Movement through the caverns requires good timing, perseverance, a steady hand and above all, a reliable joystick - accurate jumping relies heavily on the responsiveness of the joystick diagonals. From my initial observations it would appear that the game has a great deal of depth to it - a good indication of lasting appeal.

From the moment that the ace loading screen appears there is an air of professionalism that suggests the game is going to be something special. A superb and completely original musical composition accompanies a cleverly animated title page, which precedes the first of many stunning screens depicting the highly active caverns of the complex in high-resolution, high quality graphics. As in Zybex, shading and colour have been used to exceptional effect and a huge amount of time and effort has obviously been spent perfecting each individual screen right down to the smallest detail. Animation is in abundance with some really incredible effects such as the graceful bounds of Frognum who himself is brilliantly defined and humorously turns his head in anxiety if you fail to issue a command for any length of time. Feast your eyes on the screen shots and imagine that the display is bustling with fast action in glorious colour - it really is great, and sound effects are excellent too!

Zeppelin Games deserve every possible success as reward for producing an addictive, challenging and utterly outstanding package. Show Zeppelin your appreciation and you will be helping to ensure the future survival of quality software for your Atari. Don't be deterred by the price, DRACONUS honestly is the ultimate value-for-money experience! If you don't get yourself a copy you must be mad!

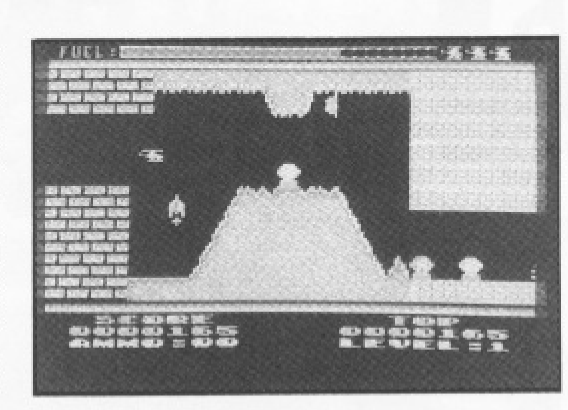
'an entirely different class'

Title: DRACONUS
Publisher: Cognito/Zeppelin
Price: £9.95 cassette/£12.95 disk
Players: 1
Control: Joystick

Reviewed by Paul Rixon

SCRAMBLE ... SCRAMBLE

There's no shortage of 'Scramble' clones for the Atari and the majority of those in existence are far from lacking in quality - Airstrike, Laser Hawk and The Tail of Beta Lyrae (an undisputed classic) are all highly recommended games from days of old. DAWN RAIDER, Atlantis software's tenth Atari release, is more or less a helicopter adaptation of Airstrike and in common with its predecessor, appears to be a competently programmed and highly playable translation of the Scramble concept.



As you might expect, a zealously guarded subterranean complex (or a cavern, even) requires infiltrating with a view to destroying some rather nasty sounding Nuclear Missiles belonging to an even nastier Super Criminal who is asking for a twenty billion dollar incentive not to fire them at major cities of the world. Only you can save the day by piloting your heavily armed (but minutely proportioned) prototype helicopter gunship through the violently twisting caverns of the enemy complex, avoiding gunfire, rockets and numerous other forms of attack as you go.

Joystick controls are reasonably straightforward. Apart from the obvious directional commands, you can shoot ahead with the fire button or combine this with a backwards movement of the stick to drop bombs on enemy installations. There's more skill required than first meets the eye as it soon becomes evident that your helicopter has a fuel consumption that's measured in tanks per mile rather than vice versa! Extra fuel is obtained by bombing 'F' symbols (hardly logical but since when did that matter?) and ammunition must also be accumulated by similarly aiming for 'A' symbols. The biggest headache, however, is attempting to manoeuvre the helicopter around the jagged passageways with frequently just millimetres of clearance. For the expert super-pilots there are three alternative levels to master as well!

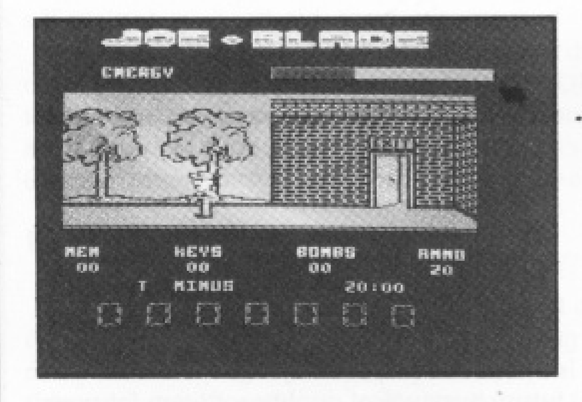
Graphics aren't brilliant but the nature of the challenge is sufficient to compensate for any lack of resolution. Colours are set randomly each time you play - a nice effect - and the overall display does look much more 'professional' than certain other Atlantis games I could mention. DAWN RAIDER even kicks off with some musical accompaniment - an Atlantis first - but don't get too excited as the rendition of 'Axel-F' is not one of the most memorable ones I've heard on an Atari. I'm not sure that the sound of sandpaper being rubbed against a piece of wood is the ideal noise for a revolutionary helicopter gunship either!

Spectacular sound may not be one of Atlantis Software's claims to fame but budget pricing certainly is, and £1.99 can only be described as a ridiculously low price to pay for a chance to save the world from global destruction! Be sure to check this one out.

Paul Rixon

Title: DAWN RAIDER
Publisher: Atlantis Software
Price: £1.99 on cassette
Players: 1
Control: Joystick

MY NAME IS BLADE



Those darn baddies never seem to give up, do they! This time, the infamous Crax Bloodfinger has kidnapped six world leaders and is demanding a billion dollar ransom for their safe release. Who could possibly save the world from the clutches of this evil madman? Enter Joe Blade - teenage pin-up and pop idol, trained in a Tibetan monastery. Mean, tough and fearless, his very name strikes fear into the hearts of criminals throughout the land. Yep, you guessed it ... you are Joe Blade!

The ST version of JOE BLADE was reviewed in PAGE 6 issue 33 and given a fairly unenthusiastic report. Players have apparently made a much better job of the 8-bit conversion as the game appears to contain quite enough action to keep even the most experienced arcadians occupied. It's an arcade adventure located in Bloodfinger's massive fortified headquarters, consisting of 128 different rooms - many of them locked - and passages which must be explored in order to rescue the captive VIPs. It's a good idea to map the whole area, although beware that the maze does wrap round horizontally - it took several sheets of graph paper to discover that one!

Apart from freeing the hostages, Joe has also got to find and prime six booby-trapped explosive devices. He achieves this by rearranging five characters into alphabetical order within a strict time limit. Not as easy as it sounds, and failure to complete the task in time causes termination of the mission. Once the first bomb has been primed, Joe has only twenty minutes to locate the remaining devices and all of the other hostages. Guards are easily dealt with by a quick round from his semi-automatic machine gun, but bullets are in short supply so in some cases it may be more sensible to make use of his impressive athletic capabilities. Useful acquisitions include extra ammunition, life-saving food icons and a very handy 'energy suit' giving Joe unlimited strength for a short period. An energy bar above a centrally positioned viewing window indicates the current state of his health. Underneath, a large digital scoreboard and details of ammunition, door keys and time available are constantly updated.

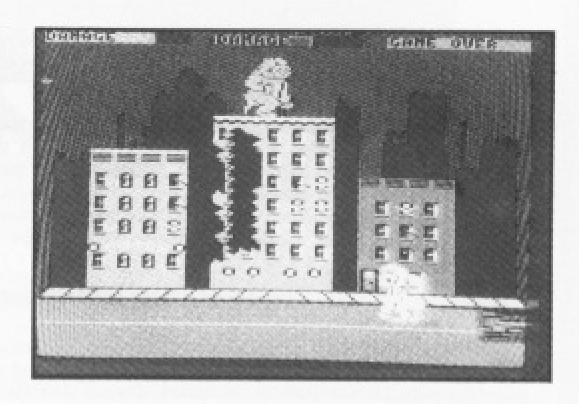
Many of the screens are graphically similar but sufficient exploration is suitably rewarded with the odd completely different scene - watch out or you could even end up trapped in the WC! As for sound, there isn't really a lot of it to talk about but whether you view this as a major drawback will depend on your appetite for computer generated noise. Personally I found the game quite satisfying without the additional lure(?) of any sonic wizardry.

Players are advertising Joe Blade II as 'coming soon' on the cassette inlay but whether this applies to the 8-bit Atari version is anyone's guess. Let's hope so as they seem to have found the formula to produce software of the high quality that Atari owners deserve and should expect.

Paul Rixon

Title: JOE BLADE
Publisher: Players
Price: £1.99 on cassette
Players: 1
Control: Joystick

COME BACK KING KONG!



'It seemed like any other day at the Greaseburger Fast Food Emporium - but three unlucky customers were to get something even nastier than usual in their Big Mucks. If only the company's Research Division hadn't accidentally shipped some of the experimental food additives ... A wave of nausea, a foul aftertaste, chronic indigestion - everything was normal until George, Lizzy and Ralph ripped out of their clothing and into designer fur and scales...'

And so begins the amusing plot to RAMPAGE - a contrastingly frustrating and uncharacteristically poor arcade conversion from Activision, originally from Bally Midway. No more playing 'Mr Nice Guy' - this time you become a baddie and, in the words of the inlay card, unleash monstrous mayhem on an unsuspecting public!

Title: RAMPAGE
Publisher: Activision
Price: £9.95 cass. £12.95 disk
Players: 1/2
Control: Joystick

Gameplay itself is relatively simple. As human-turned-monster you decide to embark on a destructive rampage through fifty cities in search of alternative nourishment. This involves climbing up the sides of tower blocks and punching holes into the offices of likely looking business premises - anything goes really! The aim is to consume various edible objects, avoiding those items such as televisions and potted plants which don't taste quite so pleasant. The task is made more difficult by troops who fire at you from the windows of some buildings and gunship helicopters continually circling overhead in an effort to prevent the destruction of the city. Damaged buildings eventually collapse and each completely demolished screen is replaced by the next in a series of 150.

Two players may compete and select their characters from a choice of George (Godzilla), Lizzy (Lizard) or Ralph (Wolfman) or the computer will automatically take over for a one player game if it senses the absence of the second player. Joystick response is nothing short of abysmal,. The controls are clumsy and imprecise - more often than not you'll lose energy waiting for an action that ought to have been carried out immediately. This does considerable damage to the game's playability.

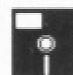
Visually RAMPAGE is adequate but hardly eye-opening. Vehicles cross the screen periodically - apparently without purpose - in front of predominantly grey buildings superimposed on a black city skyline. Energy bars above provide the necessary status information whilst single colour PMGs form the attack helicopters and other adversaries. Even the monsters themselves are poorly defined and mono coloured - not the sort of thing Atari owners should expect to see gracing their monitors in the late 1980's. Terrible is an apt description of the sound in general and especially the introductory 'music'.

Regrettably, RAMPAGE isn't anything special at all and much as I feel obliged to congratulate Activision for their support of the Atari, I can only wish that their previously standards would return.

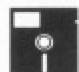
HERE'S WHAT YOU'VE MISSED!
Get your back issues NOW!

PAGE 6 back issues represent an excellent way of increasing the enjoyment of your Atari with articles to enlighten you, programs to type in and reviews of software to guide you. Almost all of the content of past issues will be as fresh and relevant today as when it appeared - increase your enjoyment now, before it's too late! Disks are available for all issues, containing all the 8-bit programs from each issue ready to run, and they often include bonuses not found in the magazine.

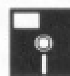
ISSUE 20 - GRAPHICS SPECIAL. A super special issue with a graphics theme. Draw some masterpieces with GRAPHICS WORKSHOP and explore your graphics potential with Colour Palette, Picloada, Colour Attributes and CIO Slideshow. An in-depth review of Printshop and Graphics Art Department, the final part of Display Lists and the Adventure column. 11 pages devoted to the ST plus a colour feature ATARI ART and ST GALLERY. And there's more! BLOCKBREAKER is one of the best games to have been published in any magazine. Don't miss it!


DISK AVAILABLE - incudes BONUS PICTURES for Graphics Workshop

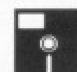
ISSUE 21 - A packed issue with games, TRAIN CRAZY, REVENGER and FORKLIFT. Utilities SCALEMASTER, QUICK DISASSEMBLER and Measuring Temperature. Programming hints with Doing The Impossible, Error 8 Solved and THE GUIDE TO ERROR CODES. Reviews of Flight Simulator II, Hitchhiker's Guide to the Galaxy, and the latest Adventures. For the ST a DEGAS to NEO converter, Lattice C reviewed and reviews of a whole host of software.


DISK AVAILABLE. All programs ready to go.

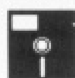
ISSUE 22 - More serious users will enjoy SMARTSHEET, a Visicalc like type-in spreadsheet, plus our review of Paperclip whilst gamesters will puzzle over TRICKY CUBES and try to survive HIDDEN DEPTHS. The Guide to Error Codes is concluded and there are articles on Fractals, Tape Problems and some less well known Adventures. Loads of reviews and some great new routines for Block-breaker. ST users will find out how to program Sprites and can read reviews of Time Bandit, Pro-Fortran 77, VIP Professional and more.


DISK AVAILABLE - DOUBLE SIDED! Contains TWO versions of TRICKY CUBES and new versions of BLOCKBREAKER.

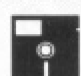
ISSUE 23 - Another superb machine language game WATER SKI SCHOOL will test your reflexes. WORDSEARCH will challenge those who like puzzles and other listings include SUPERCLOWN and the utilities XREF and VERIFY. A huge review of Ultima IV heads a comprehensive review section and Going Online Part 1 will let you know if telecommunications is for you. ST owners can discover how to get a bigger screen on their colour monitor and read reviews of Zoomracks, Sierra On-Line adventures and Pro-Pascal amongst others. Also, is it worth adding a 5/4" drive to your ST?


DISK AVAILABLE. Contains TWO BONUS PROGRAMS!

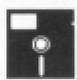
ISSUE 24 - The biggest issue so far published! Great ST section with info about ST disks and cartridges and loads of reviews. For 8-bit users there is MUNCHY MADNESS, the best game we have ever published plus a super cheque book utility AUTOCHECK. Plus all about checking your disk drive, another game called FLYING HIGH, more utilities, reviews of RAMBIT, Adventure games and lots more. Too much in this issue to list fully!


DISK AVAILABLE - Don't miss MUNCHY MADNESS, the best game we have published so far!

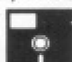
ISSUE 25 - Another biggie! A must for 1029 printer owners with 3 great utilities including a SCREEN DUMP. A super Japanese chess game called SHOGI, a type in REVISION C BASIC, a full feature on disks and more. For ST, type in OTHELLO, reviews of LEADER BOARD and MEAN 18, Hints and Tips and several other reviews and articles.


DISK AVAILABLE - ALL THOSE 1029 PROGRAMS READY TO GO!

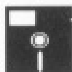
ISSUE 26 - SOLID MODELLING is one of the best non-game programs we have published. Be creative! Other programs include SOURCE WRITER for machine code programmers, FLEXIBLE FINGERS to help you type, NUTS and more. Reviews of TRIVIAL PURSUIT, DVC/65, SPEEDSCRIPT and much, much more. ST users can learn all about HARD DISKS, FAST BASIC, TYPESETTER ELITE, DEGAS ELITE and read reviews on a whole lot more software.


DISK AVAILABLE - DOUBLE SIDED! TWO full sides with BONUS SCREENS for SOLID MODELLING!

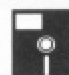
ISSUE 27 - Some cracking listings for the 8-bit. In GREAT BRITAIN LTD. you can be the Chancellor and help run the country. COMPUTER GAMMON is a great Atari version of backgammon and there's ANTS IN YOUR PANTS, DISK COMMAND and others. There is a feature on word processing and stacks of reviews. The ST section includes an in-depth review of ART DIRECTOR and a neat little program to put scrolling stars on your screen! Lots of reviews including HABAVIEW, K-SPREAD 2, K-WORD and many more.


DISK AVAILABLE - some L-O-N-G LISTINGS!

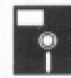
ISSUE 28 - Extend the incredible original Munchy Madness with the MUNCHY MADNESS SCREEN DESIGNER, play GREEDY CATERPILLARS with a friend, teach your children with MOST HEART MATHS or make up some crosswords with XWORD. A long feature on flight simulation programs, hints on ZORK and loads of reviews. For ST users, the first in a series of USING GEM from C plus FLIGHT SIMULATOR II reviews, new books from COMPUTE! and a whole stack of reviews.


DISK AVAILABLE - Also contains the winning title screen from our competition.

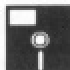
ISSUE 29 - One that serious 8-bit users have been waiting a long time for - a great full feature database - MJDBASE plus an amazing story maker, STORYBOOK, that allows you to create illustrated stories. Then there's a great game from ANTIC called CLIFFHANGER and an AUTORUN maker and more. Cheat on commercial games with ZAPPING THE RIGHT BYTE and read stacks of reviews. The ST section has a type-in program, SCREEN GRABBER, which allows you to 'snatch' pictures of commercial games to disk, plus the next part in our GEM FROM C series and reviews of Superbase Personal, K-COMM 2 plus lots of games including Barbarian. Another big issue.


DISK AVAILABLE. DOUBLE SIDED. With BONUS story for STORYBOOK and STORYBOOK reader.

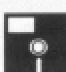
ISSUE 30 - A great follow up to Solid Modelling allows you to animate 3-D objects. Try 3-D ANIMATOR. How about a puzzle with LETTER CASTLE or an arcade style shoot-up from ANTIC called DESERT CHASE? Articles inlcude an in-depth look at GUNSLINGER, Genealogy With Your Atari and Firts Steps on saving screens. Loads of reviews including AUTODUEL and P:R: CONNECTION. The ST section includes the continuing GEM series, CYBERSTUDIO, ZOOMRACKS II and loads of games and serious reviews including GFA BASIC, K-Roget, Jupiter Probe and more.


DISK AVAILABLE. DOUBLE SIDED with BONUS MACHINE LANGUAGE ADVENTURE only on the disk!

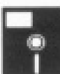
ISSUE 31 - Our massive survey on all the WARGAMES available for the 8-bit Atari heads this issue which also includes a great type-in synthesiser listing called ORIGINAL SYNTH. Other listings include FONT FACTORY, a nice character editor and a challenging game called BOWL TRAP. A feature on SSI, more Tutorial Subroutines, a long feature on THE NEVERENDING STORY, reviews of ROADWAR 2000 and THE DUNGEON plus many more are also in this issue. ST SECRETS, a new series on ST programming begins with a look at sound and the ST reviews section includes IMG SCAN, BASE TWO, TEMPUS and many more.


DISK AVAILABLE - All the extra files for ORIGINAL SYNTH set up ready to run plus all the other listings.

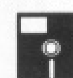
ISSUE 32 - A great card game for 8-bit users called, rather uninspiringly, WHIST plus a two player game of TENNIS and a GRAPH MAKER that works on the 1029 printer. A new series starts on EXPANDING YOUR ATARI and there is an excellent program/tutorial on BUBBLE SORTING. Reviews include THE PAWN, GUILD OF THIEVES, SPARTADOS/U.S. DOUBLER and many more. ST users can find out about programming graphics with ST SECRETS and can read all about the TURBO DIZER, PC DITTO plus reviews of Tanglewood, Defender of The Crown, Winter Olympiad, PROSPERO FORTRAN and more.


DISK AVAILABLE - DOUBLE SIDED with BONUS MACHINE CODE ARCADE GAME only on this disk.

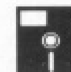
ISSUE 33 - Many readers have said this is our best issue yet with an extensive feature on choosing a printer for your Atari, plus HEAVY METAL, a superb type-in machine language arcade game. Other type-in listings include another game, CRYSTAL CRISIS and two utilities, COLOUR TUNER and SOFTKEY, the latter being a super keyboard 'macro', utility. ST owners can find out more about PROGRAMMING GEM with another article in the series and there are loads of reviews including MASTERPLAN, GUNSHIP and SPECTRUM 512. There's much more in this issue besides, including some great music for the 8-bit.


DISK AVAILABLE - including TWO BONUS GAMES that are not in the magazine.

ISSUE 34 - An ADVENTURE special to delight all fans of Atari Adventuring. Exclusive and extensive interview with LEVEL 9, two TYPE-IN 8 bit ADVENTURES, games reviews, bumper A-Z HINTS AND TIPS for all kinds of adventures, a survey of almost every known Atari adventure and much more. Other items include DAVE T'S DISCO, FLYING BY THE BOOK, TUTORIAL SUBROUTINES, the SHELL SORT and the regulars. ST File includes a round up of ST adventures, a review of DUNGEONMASTER, hints on adventures and stacks of general games reviews.


DISK AVAILABLE - includes TWO BONUS ADVENTURES only to be found on this disk.

ISSUE 35 - Use your powers of deduction TIME TO KILL to solve a crime Cleudo fashion, bend your mind with BALLBENDER, a very different game. Other great gams include REFLEX in machine code and JUMBLE CELL, a real puzzler. Plus HOW TO WRITE YOUR OWN BOOK on a 130XE, CHARACTER ANIMATION, STRUCTURED PROGRAMMING plus the usual host of reviews. The ST section includes MAD, the best type-in ST listing so far published - type it in ST BASIC, end up with a machine code game! Also, a comprehensive article on VIRUSES, what they are and how to deal with them. Loads of games and other reviews.


DISK AVAILABLE - includes BONUS machine code game only on the disk. ST DISK also available for this issue with MAD ready to run.

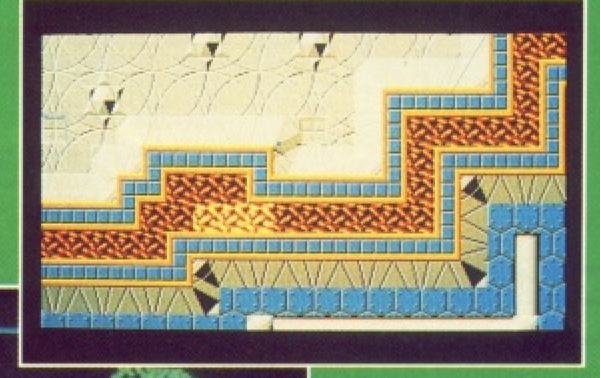
BACK ISSUES are £1.20 each in the U.K., £1.95 for Europe or surface mail elsewhere and £2.75 for Air Mail outside Europe
ISSUE DISKS are for any 48k or 64k 8-bit Atari. Each disk is £2.95. Postage FREE in U.K. Overseas add £1 per order (any number of disks)
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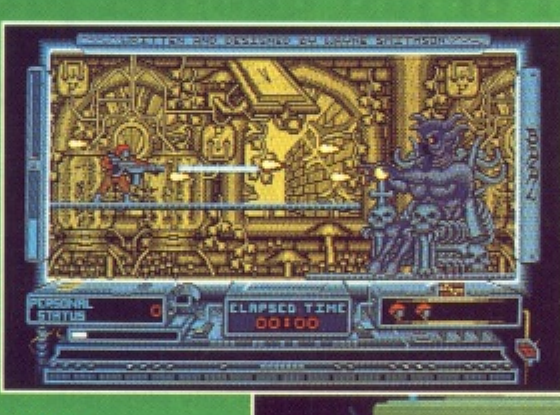
Are your games are a loss?

Try STOS

see page 52 to see if its any good



A rather different look with FUSION



BAAL
God of Evil

Behind the wheel in LOMBARD RAC RALLY

HELL BENT





What's that strange creature doing at Cardiff Arms Park?

ST NEWS

Psygnosis, having released only a select few games over the past couple of years, are now expanding with new labels and associations with overseas programmers. First release on their new Psyclapse label is Baal, in which the supreme God of Evil has despatched his army of undead to steal a dreadful weapon of destruction - the War Machine. Those with weak stomachs will be pleased to learn the the game is not quite so gruesome as the advertising! Next up from Psygnosis is Captain Fizz Meets the Blaster-Trons(!), a two player collaborative game that Psygnosis claim is so addictive that they had to ban it from their own offices! Lots of blasting, keys to find, gates to unlock and other adventures with split screen views of each players action. High in action and, at £14.95, low in price ..... from Electronic Arts is a new arcade/strategy game called Fusion featuring two directional parallax scrolling, digitised sound, the lot. Object is to collect nine pieces of a bomb scattered over 13 levels and return them to level 1 via an Assault Cruiser. Doesn't seem to be too much blasting, more puzzle solving such as trying to operate coloured switches to other levels. At least the screen shots look different from what is now becoming almost standard .... then there's Hell Bent from Novagen, following up Mercenary and Backlash, not programmed this time by Paul Woakes but by one Donovan Prince. Hell Bent is standard blast 'em in Goldrunner vein but plenty fast .... Codemasters, hoping to repeat their success with BMX Simulator, have Rugby Simulator coming up in which, you guessed it, all those of us who didn't go to public school can revel in the noble game without having to lose teeth and eyes in the process! Can't figure out, though, what that giant tortoise is doing on the field! .... plus far too many more to mention between the time of writing and the time of reading, but is the flood of ST software now beginning to abate?

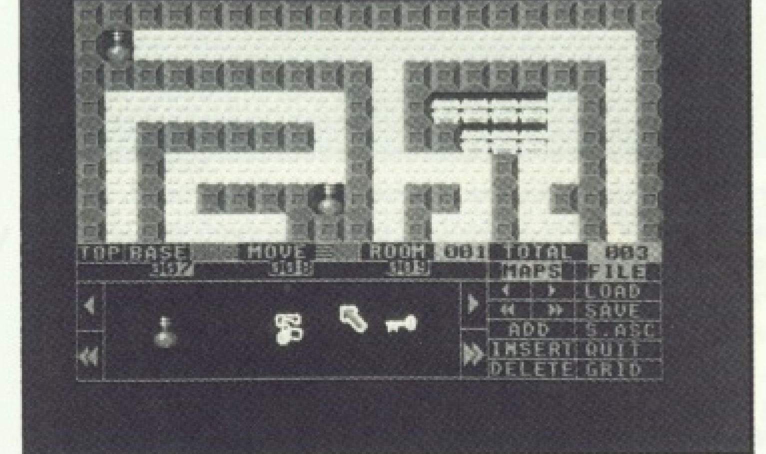
STOS

The greatest thing so far for the ST or just another program? Damon Howarth tries his hand at writing games

Every so often in the life of any computer there comes a program that can only be described as a 'must'. Normally this is some form of 'mega game' or highly efficient art program, very occasionally an application such as a spreadsheet but I have never thought of a programming language coming into this category, STOS though does! It is hard to know just where to start in a description of such a comprehensive package, perhaps the best start is to explain that STOS stands for ST Operating System and expand from there.

The packaging for STOS claims it is a games creator, this is a little unfair since it brings to mind other packages which bear no relation to the breadth of function of this software. There is nothing truly comparable with it and,in it's own field of graphic handling and sprite development, it can easily compete with most Basics currently on sale .

So what is in STOS? At grass roots level it is a Basiic programming language that commes as 3 single sided disks one of which is full of archived accessories, the second with three demonstration games and the third with the actual language itself. The system recommends that it be Auto-Booted thereby releasing the ST from the strictures of GEM and gaining an extra 32K to use. The loss of GEM is not so worrying as may at first be thought since the language provides a most user friendly environment. STOS has excellent file select and menu commands, indeed it took slightly less than half an hour to obtain a fully debugged menu command line that would change the mouse cursor and present windows with differing fonts in them. Obtaining this effect in most other languages I have used, has occasioned resorting to GEM calls and complex IF THEN routines. In STOS the command reads 'menu$(1)="MENU":menu$(1, 1)="item 1' and so on as far as you want menu choices. The activation of the menu is - menu on:A=mnselect:if A <>0 then print "you chose item 'A'. Obviously this is extendable and is most user friendly.



The most important part of the program is, of course, the manner in which graphics and sprites are controlled. This is simply effected using nothing more than x, y co-ordinates and the commands move and anim on/off. The sprites, of which it is possible to have fifteen active at a time, are interrupt driven (without needing in depth programming) and easily made aware of collisions, boundaries and all those other useful things sprites need to know in order to function in game. It was so easy to make a sprite pattern that I developed a Wildlife Panda head to bounce around the screen in under forty-five minutes, and thirty-five of that was trying to get the correct curve to it's ears since I am no artist!

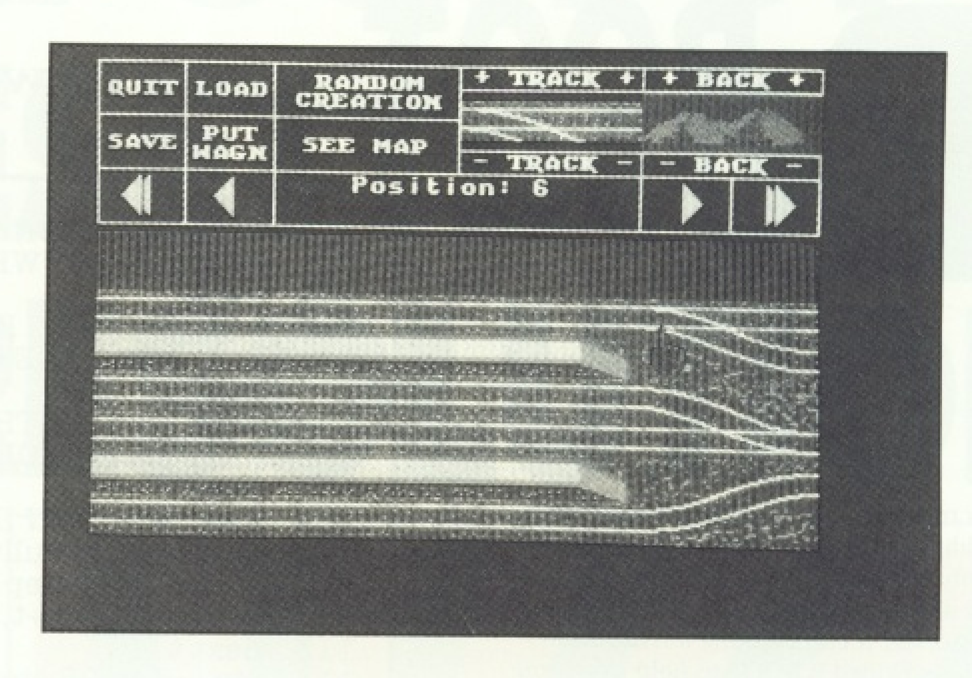
EASY SPRITE DESIGN

Having pointed out that my artistic talents are limited it was with some relief that I discovered that there was a utility called a sprite grabber with the software that enabled the user to lift their favourite sprite and tinker with it to include in their own programs. Even better there is also a means to store Degas and Neochrome format backing screens in compacted mode to make multi-screen game creation a possibility. Graphically there is the option of defining two concurrent screens to enable rapid and effective scroll changes, indeed the software even allows for commands to fade the pictures together at whatever rate or style is desired. The example from the manual gives a sort of Venetian blind effect for a slow change, although by a change in control numbers this can become instant or explosive. The window creations (up to thirteen on screen at a time) can allow for quite complicated screens to be built and by careful programming and interrupt use can almost look like the Blitter is installed in your machine. Admittedly when there is a great deal of action on the screen at one time things slow down somewhat but not too excessively and, once more, the manual makes suggestions as to how to keep optimum speeds at any one time.

Once the initial euphoria of creating sprites and being able to control the wayward ST screen wanes, the other features of the software become apparent. It is possible to install various accessories into the machine (although this is better with a 1040) which may be activated by function key, help mode or menu bar. Thus it is quite possible to have the sprite editor, an assembler, screen compactor and font editor at finger tip command without losing other parts of the current program or programs, since four separate pieces of work may be maintained at any one time. Obviously this eats memory and is not recommended for 520s, although even they can cope with one key developmental aid installed at a time. The really useful thing about all the accessories is that they are written in STOS and are totally examinable, thus they may be learned from or altered to taste. It is also possible to create your own accessories to run within the system and run time versions of anything are possible by using a tagger supplied with the package.

CREATIVE ACCESSORIES

Having discussed the 'bolt on' accessories it would seem to be a good time to comment on the more important of them. The most exciting areas of creativity are the sprite and map creators. The sprite creator looks like a standard art package with all the pallette functions, and an option to create sprites that will adapt to any of the ST's three modes. All the basic art package tools are included such as semi circles and lines with the addition that an animator is incorporated and changes may be saved and worked on with the minimum of fuss. The creator is, like the other accessories, icon controlled and, as such, user friendly. The sprites save to a special file which is subsequently called to the program and accessed during run time whenever the Basic calls it, which saves time defining sprites in aprogram and also allows for modular program creation. Why waste a good sprite control routine when it can be used to govern various banks of sprites. The map maker allows for the laying of static sprites in order to create Gauntlet style games. There are some quite familiar landmarks already in the memory and indeed the basic set up almost resembles a Gauntlet editor.



ADD SOME MUSIC

There is also the facility to produce music, again interrupt driven, to accompany your game. The accessory is not as sophisticated as some of the most expensive software but it is extremely effective. If the writer has some basic knowledge of music then the system is even more comprehensible, on the other hand it is still a great deal simpler than programming the sounds from other Basics. These files when created and saved, again become executable tacked parts of the program so, as with the sprites, your tunes can accompany many of your games. The music is controlled simply by the commands music on/off and the predefined sound effects by commands such as bang. Spot effects are equally easy to program should the pre-programmed library not fill your needs, they simply require envelope parameters passing in Basic statements and - zap - there it is!

There is even a font designer included in the basic accessories which in conjunction with quite excellent string handling allows manipulation of any form of lettering, even Egyptian Hieroglyphics. The editor is again icon driven and user friendly and a joy to work with. Minor useful accessories include a mouse detector, which allows the user to obtain screen co-ordinates of any point of a Neo or Degas picture thus allowing the programming of dangerous zones for sprites to enter.

FURTHER ENHANCEMENTS

The idea of accessories that will tack into parts of the program bank mean that the system can be upgraded as needed or development dictates. Already there are promises of a compiler and solid 3D additions from Mandarin. These and other such devices will merely enhance this package. A great deal of thought and preparation has gone into creating this 'all round good egg' and as such it deserves support, which it certainly seems to be receiving. Mandarin offer a help line to all registered users (surely a better way to deter pirates than peculiar protection devices) and it seems are now even on Micronet.

If the system is viewed as only another Basic then its number crunching abilities are not that of, say, Hi-soft although having said that the editor on this system is one the most friendly I have come across. Perhaps in common with many old time 8-bit converts I find some security in line numbers and the dreaded GOTO statements but the lack of strange windows appearing and forever being in the wrong place to execute the command I wish are now a thing of the past. To my mind this makes up for the 'older' approach. As a Basic it fulfills its functions adequately, and is more than competent at file handling especially with its file select and menu commands. Indeed the ability to create spare accessories may well allow for creating a number crunching environment, perhaps from the, now included, assembler.

STOS is too powerful to be regarded as just a game creator and indeed with its extremely powerful screen handling and mouse recognition could even be used to create adventures in the mode of Chrono-Quest or even adventures with action in the style of the Cinema-ware software. The three listable demo-games give good examples of how to use the system to its best advantage and are as playable as many commercial variants. One of the most interesting variants is the Orbit game which bears a distinct similarity to Arkanoid and in some respects plays better.

VALUE FOR MONEY

By now it must be obvious that I am most enamoured of the package and feel that it represents extremely good value. If it is viewed only as an upgraded Basic to use instead of the supplied Atari package then it is much cheaper than any other on the market. When it is realised that it also combines the sprite creator, music writer, font creator and the three good quality games then the whole package is an absolute bargain. and feel that it truly deserves its position in the charts. Furthermore it deserves to become one the listing languages for magazines in the future.

'I cannot recommend this highly enough'

STOS
Mandarin Software
£29.95

B BOOT

by Lawrence Staveley

How many of you have had the problem of adding a 1 Meg external drive to your ST only to find that you cannot use double sided disks that have AUTO folders or Accessories? It can be quite a frustration and I developed B BOOT to help overcome some of the problems.

One way to overcome the problem is to physically change the drives over which may only work if the external drive is an Atari one, or to make some hardware changes, both of which will void your warranty. A software solution is far less drastic, and although not the whole answer, this program will make your system much more flexible. The program is very simple to use and is written in ST BASIC so that any user can type it in so dig out that copy of ST BASIC, type in the listing and save it. Now follow these simple steps.

1. **Format a disk to single sided so that the internal drive can read it.**
2. **Create an AUTO folder on this disk ready for the BASIC program to insert the machine code programs into.**
3. **Run ST BASIC again, load in your listing, insert your formatted disk in drive A and RUN the program. A program will be created in your AUTO folder.**
4. **Switch off the computer AT THE POWER SWITCH.**
5. **After a few seconds switch the computer on again with the disk on which you created your AUTO folder used as the boot disk in drive A. You should shortly get the message to 'PRESS RESET', if you don't get this then there is an error in the BASIC program, and it should be checked and re-run.**

```
100  REM CREATION PROGRAM FOR
101  REM B-BOOT: WRITTEN IN ST BASIC
102  REM
103  REM WRITTEN BY LAWRENCE STAVELEY
104  REM FOR PAGE 6 MAGAZINE
105  REM
106  REM ENSURE THAT YOU HAVE MADE AN
107  REM 'AUTO' FOLDER ON THE DISK FIRST
108  REM
109  REM WRITTEN IN ST BASIC - '87 VERSION
110  n=&h60000:fullw 2:clearw 2:?:?
111  for t=0 to 5 step 2
112  read a:poke n+t,a
113  next t
114  for t=6 to 25 step 2
115  poke n+t,&h0000
116  next t
117  for t=26 to 67 step 2
118  read a:poke n+t,a
119  next t:? "Creating A:AUTO\BOOT.PRG":?:?:?
120  bsave "a:auto\boot.prg",&h60000,68
121  REM ONE DOWN, ONE TO GO.....
122  n=&h60000
123  for t=0 to 5 step 2
124  read a:poke n+t,a
125  next t
126  for t=6 to 27 step 2
127  poke n+t,&h0000
128  next t
129  for t=28 to 71 step 2
130  read a:poke n+t,a
131  next t
132  ?:?:? "CREATING: A:AUTO\POWER_UP.PRG":?
133  bsave "a:auto\power_up.prg",&h60000,72
134  end
135  REM ** BOOT.PRG - DATA **
136  REM *********************
137  data &h601a,&h0000,&h0028
138  data &hffff,&h42a7,&h3f3c
139  data &h0020,&h4e41,&hdefc
140  data &h0006,&h33fc,&h0001
141  data &h0000,&h0446,&h3f3c
142  data &h0001,&h3f3c,&h000e
143  data &h4e41,&hdefc,&h0004
144  data &h3f3c,&h0000,&h4e41
145  REM ** POWER_UP.PRG - DATA **
146  REM *************************
147  DATA &h601a,&h0000,&h0024
148  data &h2f3c,&h0000,&h0016
149  data &h3f3c,&h0009,&h4e41
150  data &hdefc,&h0006,&h4ef9
151  data &h0000,&h0010,&h5052
152  data &h4553,&h5320,&h5245
153  data &h5345,&h5400,&h0000
154  data &h0000,&h0002,&h1000
155  data &h0000
```

If you have got this far you should now have a working version of B-BOOT. Simply insert a 1 Meg disk containing an AUTO folder or an .ACC file that you wish to use in the external drive and PRESS RESET. The computer will read the boot sector from drive A and will then continue the boot with drive B as if it was drive A.

There are a one or two problems which the program does not solve. The first is that software that loads from the BOOT SECTOR cannot be run from drive B. This is not very serious as ALL commercial software is supplied on half meg disks. The second problem is that if a program changes the drive handle back to A: the computer will revert to drive A. This can often be changed by using a program like ANTIC's DISK DOCTOR to search for filenames and change the drive identifiers.

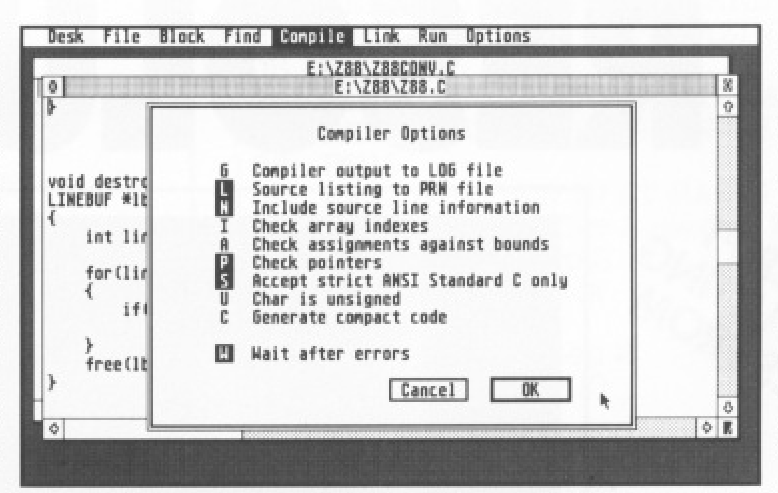
The only other thing that might cause a problem is not really a fault of the program. If there is a DESKTOP.INF file on your disk that is set up with a window open for drive A then the computer will read the directory for drive A. The only way to solve this is to set up the window with drive B open, save the DESKTOP.INF (to drive A), and then copy this file onto drive B. ●

Prospero C

for the Atari ST

reviewed by Matthew Jones

The C compiler market is an interesting one to join. Obviously C is a very popular language, but the marketplace is already served by a number of well known, professional compilers, like the Lattice and Mark Williams compilers. To enter the market now you have to provide something better than is already there and Prospero C does do that - by providing a fully integrated environment (first used in their Fortran), the PROBE integrated debugger, and ANSI standard compatibility.



FOUR MANUALS

Prospero C, hereafter referred to as Pro C, comes as a package containing three single sided disks, and four covered ring bound manuals in a slip case. The disks contain the necessary programs, and some sample source files, as well as library header files. The manual explains how to place the files according to your disk drive set up. If you have a hard disk (as I do), you may place them more or less where you like - you can configure the compiler to find them anywhere.

The four manuals each cover a major area - the compiler and utilities; the C language library; GEM AES and GEM VDI. The latter two are very thorough, giving not only the parameters, but why you would use a function and example code. It is not quite perfect - I notice for example that vst_load_fonts() does not mention that GDOS must be resident or it will crash - but they are very good nonetheless and I am pleased to see them.

The main manual covers the installation, compiler and utilities; the language definition; Prospero implementation and appendices which include the error number explanations (though no more than will be shown by the compiler anyway). Each topic is covered well, though some more obscure subjects could do with more elaboration - I have yet to see an understandable explanation of the new ## preprocessor token.

The fourth manual is the prospero C library reference. This is in two basic sections, the first covers functions by the header file that they are declared in (and so is a breakdown by classification) and the second section contains function descriptions. I am pleased to see that each function has its own page in the alphabetical sequence - unlike the Lattice manual which lists printf() fprintf() and sprintf() under one name. The user is referred elsewhere for full detail, but at least it is easy to find. The C library includes all the old favourites, but also some I did not expect. Routines for directory searches, findfirst() and findnext(), as well as a drivemap() to tell you which devices are attached are useful extras. Each function is indicated as ANSI standard or not, so portability may be maintained.

The first program I decided to write was a small utility to run another program and then hang. It may not sound useful, but it allows me to park the heads on my hard disk without having to close the windows and run SHIP.PRG from a floppy. My first attempt caused the system to bomb, and I eventually found out that you must pass at least one parameter (as well as the filename) to the spawn() function - something not mentioned in the manual so I presume it to be a bug (not uncommon in any large library). The next program was much more complex, and all library functions worked fine, so I suppose it is an isolated problem.

THE PRO C ENVIRONMENT

The Pro C environment incorporates a windowed editor which can manage up to four files to be edited at once. The editor understands many Wordstar and Macintosh style key commands and is acceptable, but it does have its problems. Mouse integration is not good, as using the scroll bars causes a lot of mouse shape changing and the re-draw is much slower than the equivalent key command. The biggest pain for me is that when you select a block, the Delete key deletes the single character under the cursor, not the block. I also tend to expect it to work as the Mac and Microsoft Windows do, and delete the block when I type something else - but it just adds the new stuff to the block. This is a problem of application consistency, and the fact that GEM applications aren't consistent is partly due to the lack of application guidelines that the other systems have. The editor also uses spaces for tabs, which as I have said before is terrible for programming, but no Atari editor yet supports real tabs. Apart from mouse speed and block irritations, the editor is good.

COMPILING

Once you have your file, you can then use menu options to compile and link it (separately or together). Compilation is regulated by a set of options which control such things as strict ANSI adherence, char is unsigned, generate compact code, include pointer, index and assignment checking. Other options allow you to compile a file that is not in the editor (it is also possible to use the compiler as command line driven) - necessary for one of the demo programs due to insufficient memory on my 520; to just check the syntax; or generate a cross reference. One point I found annoying was that the line number shown on the dialog for errors includes lines read from the include files, thus the error which it says occurs on line 563 of your source file may actually be on line 47, so noting the line provides no help. It would be nice to see the first twenty errors remembered so that the compiler could take you from error to error for debugging. At first, I felt it was quite a slow compiler - 15 seconds to compile and 23 seconds to link a simple 'hello world' program which included stdio.h. I compared it to Lattice C and the command line version (about equal), and it seems the environment has a slight handicap, probably due to memory overlays. The manual does not mention optimising the output at all, something which is becoming more standard nowadays.

At about the time I started to write this review, the December issue of PCW magazine came out. It has an article by the BSI on ANSI standard compilers, and two short programs to test compliance. Pro C fails both! Obviously in any complex program, there will be some small bugs, and Prospero say that they will continue to tighten the compiler to the specification, correcting

as discrepancies become known. If you find and report a bug you will receive a free upgrade when it is fixed.

LINKING

The linker can be told to link without floating point libraries, with the GEM libraries, or with a control file. The control file allows a program to be made up from more than one source file. It is at this point that I want more from Pro C. Everything that it does, it does competently (it has never even bombed on me!), but I have been spoilt by the Macintosh and IBM PC world. Unlike integrated editor-compilers on those machines, Pro C has no intelligence. I am used to flipping between each of four or more source files, and when I feel ready, choosing 'compile' and having it look and think 'hmm, he's changed these two source files, so I had better re-compile them before linking'. This principle - the MAKE principle - makes programming easy and fast as you cannot forget to compile a module. Because the system has a list (which it helped you build) of the source files, it knows what to tell the linker for you. Such an environment really does help and Pro C is not yet it - but is the next best thing.

THE DEBUGGER I DREAMED OF!

PROBE, the source level debugger, is something I dreamed of years ago, and at last it is possible on the ST. That said, it is by no means up to CODEVIEW on the IBM, but it has all the essentials. Once you compile your program, generating line numbers and a source listing, you may use PROBE to debug it. Debugging with PROBE can be initiated from the environment, or from the desktop. When the program under test starts, you are shown the current line (from the listing file). You may then step through the program, tell it to execute a number of lines, or tell it to go until it gets to a line. This ability to stop when it gets to a line is very powerful as you may specify a range of lines in a particular file, or a variable changing. The latter may be subject to a condition, so you can let the program run until the variable 'loop' gets to 998. Such capabilities allow debugging to be much faster, especially as multiple 'breakpoints' can be specified. You can also find out the function calls made to get to the current location, or view the route which the program took to get here (i.e. the most recently executed lines). These answer the age old programmer's question 'but how did it get here?'. More basic facilities include enabling screen swapping (so windows etc. can be maintained), on-line help, listing lines, profiling (so you can find out which parts are used most - very valuable). PROBE will also work with a machine code debugger if you need it.

Another essential aspect of source level debugging is viewing variable contents in the appropriate form (i.e. as an integer or string, not just a string of hex digits). You can obtain displays of local and global variables (including strings) and change them too. If you don't have source level debugging you should buy this now. For six months I had been using CODEVIEW on the PC, then came to work on the ST - and couldn't remember how you debugged on the ST - true! Being able to watch your code execute will at least double your productivity.

CONCLUSION

Prospero C will in future be my compiler of choice on the Atari ST. It supplies what I need in a compiler - ANSI standard, an integrated environment and source level debugging. But there is still room for improvement. I have mentioned compilers on the Macintosh and IBM PC which take integration steps further, but Prospero C is a step in the right direction for the Atari, and is well placed to provide us with better yet - I shall pass on my wish list!

Prospero C costs £129.95 and is available from Prospero Software Ltd, 190 Castelnau, London SW13 9DH. 01-741-8531

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THE LIGHT FANTASTIC

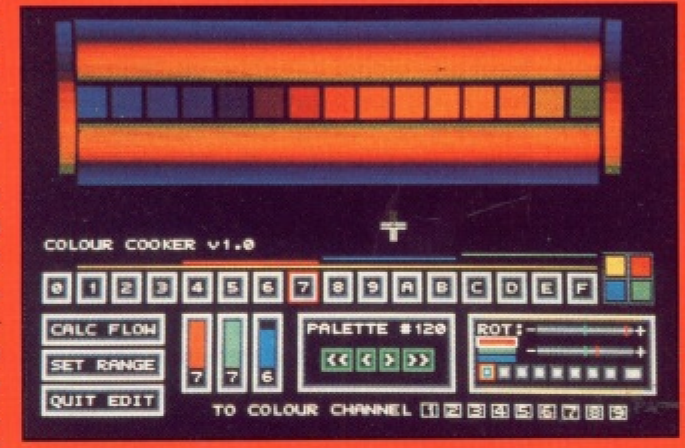
John S Davison looks at a year in one man's life

Remember all those Llamasoft adverts on the back of Page 6 saying "Colourspace 2 - Coming Soon"? Well, ace programmer Jeff Minter finally delivered it in the form of Trip-A-Tron, his most advanced light synthesiser yet. It turns your computer into an instrument for producing animated light and colour graphics displays, usually as an accompaniment to a piece of music. It's not a sound to light converter - YOU have to do the playing.

Trip-A-Tron comes on two disks in a very smart yuppie-type Filofax style binder. The high quality illustrated instruction manual runs to 139 pages and took Jeff longer to write than it did to code the whole of some of his early games! It's written in Jeff's usual zany style, making learning the program's features a pleasure instead of the chore it could easily have been.

The program comes with pre-configured auto-loading demo files, so after just a few seconds familiarisation you can be viewing a breathtakingly beautiful kinetic lightshow of your own making. You'll produce pleasing results too, as it's virtually impossible to play the visual equivalent of a 'bum note'. In fact, ease of use was a major design aim, implemented mainly through a series of menus and control screens the like of which you've never seen before. They're liberally sprinkled with humour, and usually involve llamas, sheep, or camels somewhere in the design.

There's enough demo material supplied to keep you going for a long, long time as virtually the whole keyboard has been mapped with many colour palette, pattern decay, pattern expand, symmetry change, starfield, strobe, and laser effects.



The demos and presets are only a starting point though. You have access to all Trip-A-Tron's control functions, allowing you to customise the whole thing for your own purposes. For instance there's the Colour Cooker for building customised colour palettes, colour rotation ranges, and smooth colourflows from any colour to any other. There's the "Sillyscope" for customising simulated laser dot and line displays by choosing driver waveforms and other parameters. You can even create your own waveforms using the waveform and oscillator editor. You can also edit your own decay, expander, and line patterns for plotting on screen in response to mouse movement.

All of the above can be done on any ST, but certain other facilities require a minimum of 1024K memory. In this category are the starfield editor, video sequencer, and event sequencer. As you'd expect, the starfield editor allows you to create your own animated starfield effects. The two sequencers are probably the most powerful features of the program. The video sequencer allows you to load multiple NeoChrome, Degas, or RLE (Run Length Encoded) pictures into a framestore and then manipulate them in many ways. Functions available include rotation in three dimensions, reflections, scrolling, resizing, replication, pixelisation, filtering, texturing, and frame sequence display to produce picture animation. All this eats memory, so the bigger your ST the better. There's room for only 16 frames in a 1040ST, which is a bit limiting, but you can get 110 or more in a Mega ST4.

The event sequencer is a method of recording lightsynth events in real time on up to eight independent tracks. You can then play them back so they automatically trigger at the right time, allowing you to concentrate on other aspects of a performance. It's similar in concept to sequencers used with sound synthesisers. Events include such things as strobe effects, symmetry changes, and animation sequences.

Trip-A-Tron even has its own built-in programming language. This is KML (Camel - get it?) or Key Macro Language. It allows you to write programs to control and execute Trip-A-Tron's multitude of facilities and assign them to triggering keys on the ST's keyboard. You can have up to 128 programs resident at any time and up to EIGHT running in parallel. KML can read MIDI data from a music keyboard too, which opens up some extremely interesting possibilities!

All the customised elements you create may be saved out to disk for later use. There are twelve different file types for this, so file handling can be quite complex. To simplify it there's a good file access menu and a macro-loading system for handling groups of related files.

Jeff Minter has dedicated a year of his life to creating Trip-A-Tron. It's a massive investment of time and energy, and it shows in the high quality and versatile nature of the final product. Although the program has been reviewed before none of the reviews have really explored the depths of Trip-a-Tron but that's not really surprising. How can you condense into a few hundred words something that has taken this about of time and dedication to produce? This time is reflected in the relatively high price, but Colourspace owners can get a £10.00 discount by returning their Colourspace disk direct to Llamasoft. Trip-A-Tron is a magnificent piece of software, taking the ST into new realms of creative possibilities. Buy it soon and experience them yourself.

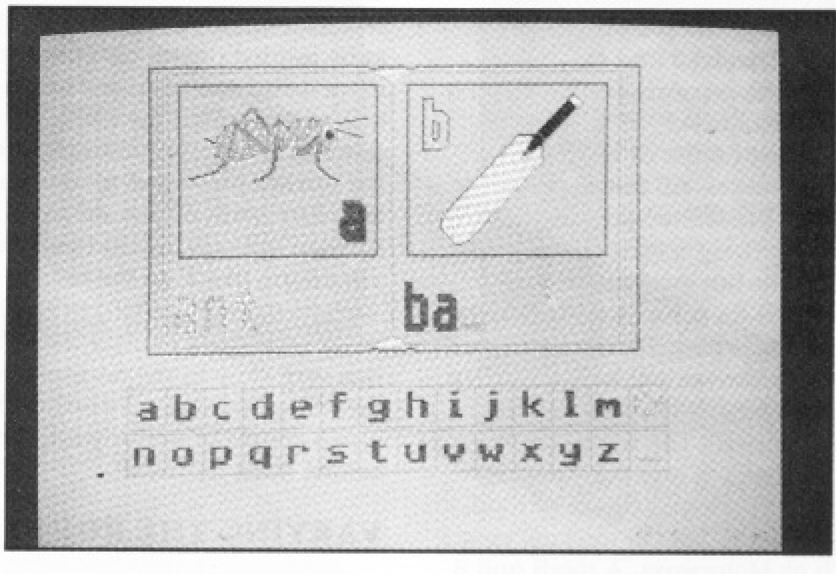
TRIP-A-TRON
Llamasoft
£34.95

AS EASY AS ABC

With so little educational software on offer a new series from softstuff looks promising so John S Davidson takes a look to see if this might be the start of something good

There's always been a shortage of educational programs on Atari computers, so I was very pleased to see this new ST release from Softstuff, a new software company aiming to specialise in educational packages.

Producing a successful educational program, particularly if it's aimed at young children, is not as easy as you'd think. Amongst other things the program has to be friendly and easy to use by its intended audience, it must be able to capture and hold the child's interest, be flexible enough to cope with different skill levels and reinforce (not conflict with) other means of learning, particularly school work. And, lest we should forget, it should also teach something worth learning!



Spell Book tries hard to meet these criteria. It's a simple reading and spelling 'game' aimed at children in the 4-6 year old age group. It's based on the idea of displaying a picture of a familiar object and inviting the child to spell out what it represents. A correct answer results in one of several children's songs being played plus a number of points awarded depending on how many attempts were taken to get it right.

The first thing a child notices about a program is its presentation. Robin Kimberley, Spell Book's programmer, has ensured the program's displays use big, bold lettering and bright, attractive colours. The graphic work (produced by artist Stephen Taylor) is clear and uncomplicated, and the youngsters should have no problem in correctly identifying the required words from the pictures. My only gripe about presentation concerns the sound of the program rather than its looks. Title screen music and musical rewards use only one sound channel, and the result is excruciating! On first hearing even my seven year old son Peter remarked how awful it sounded.

One of the biggest problems with educational programs is their use of the keyboard. Young children are initially taught to read and write only lower case letters, so giving them a keyboard marked in upper case often results in instant confusion. Softstuff have tried to avoid this by using only the mouse. This is an excellent idea, but only if it can be done easily by the youngest children at whom the program is aimed. Unfortunately, Softstuff have managed to make the mouse operation more complex than it could be. To spell a word you pick up letters one by one from the alphabet grid at the bottom of the screen and place them in the spaces provided under the picture but you have to click the LEFT mouse button to pick up letters, and the RIGHT button to put them in place. If the letter isn't precisely aligned with its space you can't put it down, and if you accidentally pick up the wrong letter you can't put it back and choose another. You have to position it in the word you're building and then click on a backspace icon to erase it. This all seems rather complex for a four year old child to handle.

Another grumble is that there are only 26 words to spell - one for each letter of the alphabet. This seems rather miserly for a program costing almost £20. Softstuff say they'll be releasing extra word disks at £9.95 each, but this could make the whole exercise very expensive. Also, the choice of some words strikes me as a little odd. Most are OK, being words of three and four letters like ANT, EGG, and FROG, but for the letter 'O' the word is OCTOPUS. On the other hand, I guess even a four year old likes the occasional challenge!

The program handles three skill levels - not by using easier words at lower levels, but by giving extra attempts at getting a word right and supplying visual clues as to which letters are wrong in the event of mistakes being made. If the two player option is used both players have to use the same skill level, which is a pity.

The total words spelled correctly and incorrectly are shown to each player at the end of the game. These numbers are then presented as a simple piece of arithmetic showing number right minus number wrong. It's possible for this to produce a negative answer, in which case the program displays 'More Wrong Than Right'. A score is also displayed, calculated from the number of words spelled correctly with deductions for mistakes. Also by way of review, all the words the child has attempted are displayed in sequence, first the ones correctly spelled then the incorrect ones.

I hate to say it, but Spell Book was a disappointment. It has enough rough edges to put me off buying it, and with its limited vocabulary of only 26 words it doesn't seem good value for money. With a bit more polish and an expanded vocabulary the story could be different. Softstuff have obviously tried hard to produce a good quality product for this difficult area of the market, and we should applauded them for doing so. I look forward to seeing their future releases. •

SPELL BOOK
Softstuff
£19.95

AUTOROUTE

Is there such a thing as a unique program nowadays? Les Ellingham travels the length and breadth of the UK to find one!

It is quite rare nowadays for a program to come along that is truly unique. Almost every program is a variation on an established theme, another word processor, another database, another art package or yet another game so when something totally new comes along it becomes quite exciting. In this case the program is Autoroute, which has been around a while on the PC's but now makes its way to the ST. Autoroute is just what the name implies, a route finding program for the whole of mainland Britain based on over 67,000 miles of Ordnance Survey mapped roads. With Autoroute you need never look at a road map again and what's more it will also tell you how long your journey is going to take.

FORGET THE MAP

In the time it will take you to walk out to the car for the map, you will have Autoroute up and running. The program is very easy to use, no map reading skills are involved and you don't even have to be able to spell because the program will give you a choice of places for names it doesn't recognise!

Initial choices for set up are the choice of miles or kilometres, speed, road preferences and choice of routes. All these are simple drop down menus with the speed as a predefined selection of 2Cv, Normal, Rush Hour, GTi or HGV. These speeds are all fairly realistic and conform to the speed limits but you can change them if you wish and save your settings for future use. The route selection allows you the choice of - A Selection, Shortest, Quickest or Most Economic and whilst these are convenient headings they do throw up one or two anomalies such as the 'Quickest' route sometimes taking longer than the 'Shortest'! The routes really depend on your selection of road preferences and the 'Quickest' is really the optimum route using your preferred choice of road.

Road preferences are made by using slider bars to indicate your like or dislike of certain roads such as Motorways, A roads and B roads. You can also indicate if you like or dislike changing roads. Whilst this certainly works in determining the routes chosen, the slider bars don't really give much indication of how the route will be affected unless they are right over to the 'Like' or 'Dislike' markers and this is probably the weakest part of the program. The journey details allow you to avoid certain locations but this is not quite as flexible as it could be.

LET'S GET MOTORING

The best way to test the program is to enter a familiar journey and so I dropped down the Journey Details menu and entered Stafford as a starting point and Hadleigh as the destination. That will catch it, I thought, as most people know Hadleigh as being in Suffolk but up popped a selection box asking me to choose between Hadleigh, Essex and Hadleigh, Suffolk! Nice going, but you do need to be careful as entering Hadleigh to Southend (a distance of 5 miles) gives you a route of 600 miles! What? Did you know there was also a Southend on the South West coast of Scotland?

After a minute or so of calculating the routes started popping up as a sliding bar gave an indication of the progress of the searches. Quickest Route 171 miles in 2 hours 17 minutes, Shortest Route 167 miles in 2 hours 44 minutes and so on. Four routes in all were given before it was time to Exit and select whether to view the map or the route as text. Clicking on Route Map shows a map of the whole route with all the selected routes shown and the main route highlighted by a flashing line. On a colour system this alternates between blue and red and is slightly harder to pick out than on a mono system. At this stage certain keys or the mouse may be used to enhance the map.

Selector boxes allow more or less detail to be shown whilst keys allow, among other things, auto-naming of locations to be switched on or off, route flashing to be toggled or the route map to be printed out on an Epson compatible printer. More and more detail can be added to the map to an impressive extent but with autonaming the whole lot rapidly becomes unreadable. The solution is to turn autonaming off and select each location with the mouse, place and road names can be switched on or off at will. Any point on the map can be chosen with the mouse and zoomed in upon, again to an impressive extent, right up to something like 2" to the mile!

So how did my Stafford to Hadleigh route fare? Quite impressive, it picked out exactly the route I always take and a time that was very close to the normal. One of the other routes given was the route I used to take before the M25 opened and there were also a couple of minor variations that I had not thought off before, must try them!

VARYING THE ROUTE

When entering the Journey Details you are allowed to indicate that the journey should go via up to four different points with provision for stopping time at each and you can also indicate that you wish to avoid certain places. If for instance you normally have a set journey but hear on the news that Junction 17 on the M1 is closed you can simply enter your route as avoiding Junction 17 and in the time it would take you just to find Junction 17 on a conventional map, a new route will have been worked out! One thing that does not work too well here is that you can't indicate that you want to avoid the M1 entirely, this can only be done with the slider bars mentioned earlier which causes problems if you want to avoid the M1 but join the M6 later. Journey Details doesn't let you avoid the whole of the M1 and the slider bar will normally select a route avoiding all motorways.

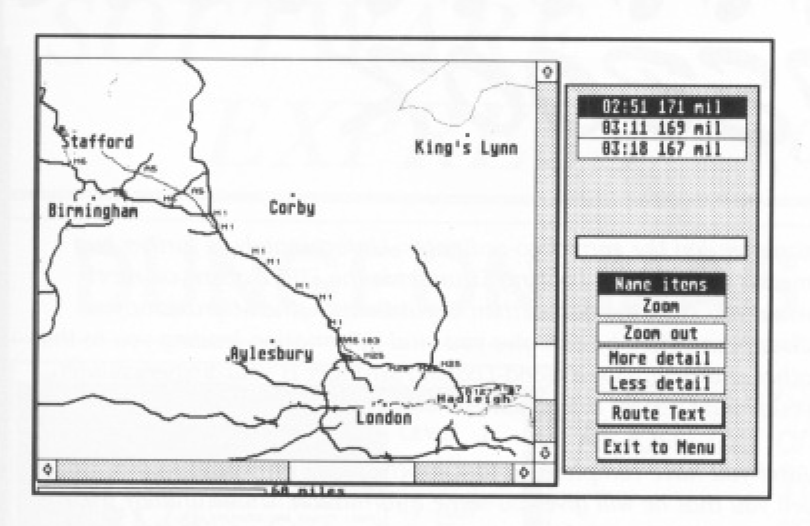
Journeys via certain places works very well however and, by using the slider bars and recalculating the route an amazing variety of routes can be selected. The route timing is excellent, assuming no hold ups and will give you a very good estimation of your journey time given a setting off time or, better still, you can indicate what time you wish to arrive and the program will indicate what time you should set off!

GOING ON HOLIDAY

Working out routes from one point to another is quite straightforward but what about working out a touring holiday? Let's take as an example a day trip around North Wales starting from

continued on page 63

AUTOROUTE



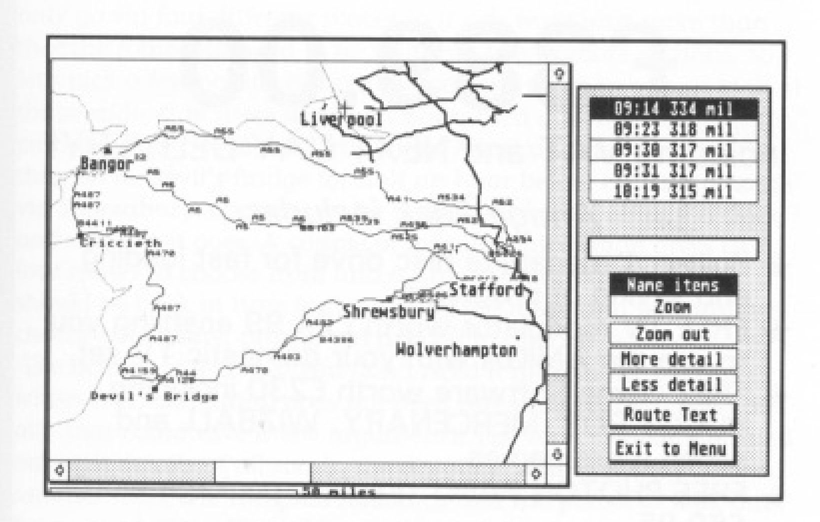
1. The overall route chosen from Stafford to Hadleigh, in this case mostly down the Motorway. By using the slider bars on another menu we could have avoided the Motorway and selected a route on A roads or even on B roads, in the latter case the journey extends to over 300 miles and takes 10 hours!

Quickest	Cheapest	Shortest
02:51 171 mil	03:11 169 mil	03:18 167 mil

Stafford to Hadleigh, Essex

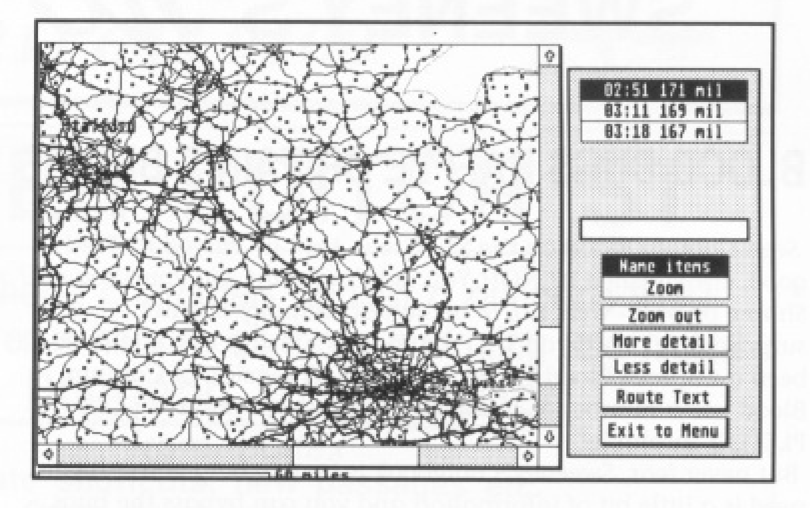
Time		Road	For	Dir	Towards
19:08	DEPART Stafford	A449	3 miles	S	Wolverhampton
19:15	At M6 J13 turn left onto	M6	55 miles	SE	(Gailey)
20:01	At M1 J19 M6 J0 turn off o	M1	62 miles	S	*Check access*
20:59	At M25 J21 M1 J6a	M25	34 miles	E	Enfield
21:48	At M25 J29 turn off onto	A127	15 miles	E	Southend
21:57	Turn off onto	A129	1 mile	S	(Hadleigh)
21:59	Turn left onto	A13	1/2 mile	E	Southend
22:00	ARRIVE Hadleigh, Essex				

3. The print out on screen of our selected route. Any of the routes selected can be printed out in full A4 size on any printer. The maps can also be printed out but an Epson or Epson compatible is required



5. The holiday route described in the text showing a central route through Snowdonia or a more Northerly route close to the coast. This route was calculated using the standard settings but an alternative route could have been found using more B roads.

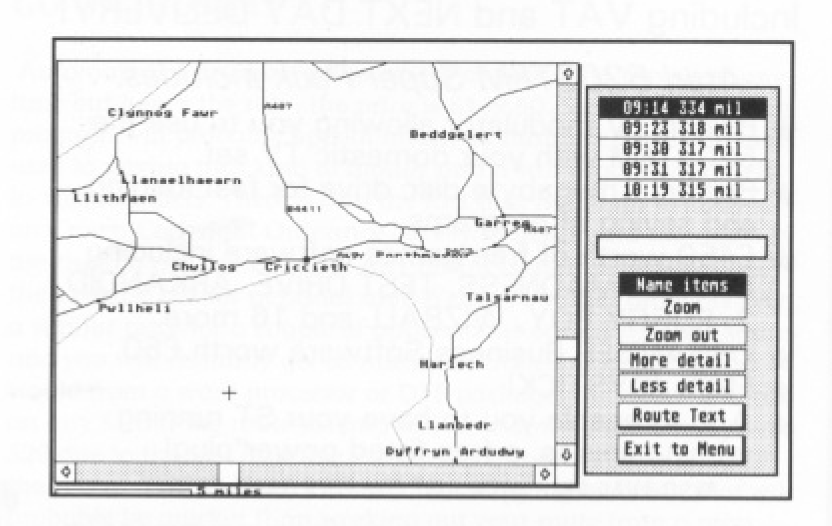
HAVE A NICE DAY OUT!



2. Not a very practical exercise in route finding but included to show the level of detail available. This is the same route as above with added detail. Any of the roads or locations can be clicked upon to be identified. If you zoom in on particular locations the level of detail stays the same but with the map at a larger scale it becomes easily readable.



4. The start of our holiday route. A circular route can be selected by giving the same starting point and destination but be sure to give a reasonable choice of places to go via, otherwise you just end up with a route that is the same there and back. Note that stopping times can be given for each location. If you wanted to visit more places it would be necessary to split the route into several sections.



6. If you require more detail on any section of the route, you can simply zoom in on any chosen location. The detail is obviously not as great as would be obtained from a conventional map but is nonetheless quite adequate for motoring. Notice that the usual GEM slide bars can be used to study adjacent areas.

SWEENEY'S NOTEBOOK

BLOOD BUGS BAFFLE BRITAIN'S BRAINS

Seen Captain Blood on the ST? Great, isn't it? Played it? Pretty good, eh? Finished it? NO!? You didn't give up, did you? You did? Shame on you - well, no, to be honest, actually it is not surprising at all - if you DID manage to finish it it would have been a Captain Bloody miracle: the UK ST version of Captain Blood has a number of significant bugs which make it COMPLETELY insoluble!

But never fear, Sweeney's notebook is here to help you. All you need is a little bit of information and you can bypass the bugs and finish the game (and the last screen is worth seeing - makes your hand start shaking again even though you've defeated all your clones!). All is revealed below - but don't worry - no clues to spoil your enjoyment, just necessary data!

Your informant is lying when he says that the third Robhead planet is 38. What he really meant to say was 389!

Howdy Prison and Insult 4 both claim their planet is called INSULT 80 - one of them is lying. What he meant to say was that his planet is called BAD TRAP!

If Good-Looking Stranger (the Buggol on Rosko 2) gives you a set of co-ordinates preceded by an "=" then you may not be able to use them can give you the correct co-ordinates. Unfortunately, a further bug means that if Good-Looking Stranger is the FIRST alien you meet when you start the game, then Great Bounty (the Migrax) may disappear before he can give you vital information leading you to that other character. So, if Good-Looking Stranger is your first encounter you should restart the game.

After you have completed a task for the Sinox on planet 128 he will tell you that he will give you some information. Unfortunately there is one combination of circumstances under which he fails to do so. If you hit this then go and think of something to do with or say to Yoko, then come back to the Sinox.

Occasionally you will be given co-ordinates for planets which appear uninhabited - this appears to be due to a time warp caused by the fact that you haven't done something yet that they assumed you would have done. What you need to do is pryh brnr. (I added 3 to each letter so as not to spoil the fun for those who don't want clues!)

So off you go and finish it now!

ME GOOD-LOOKING GAMESPLAYER
PLANET ME = NOTTINGHAM
ME HELP YOU
YOU NOT LIKE ME ME DESTROY PLANET YOU

AUTOROUTE continued

home (Stafford again!). If you know which places you wish to visit then they can be typed straight into the Journey Details, or you can check a conventional map for interesting places but you can let Autoroute do almost all of the work for you.

First thing to do is work out a simple route from your starting point to the furthest point you are likely to visit and this will produce a map of the whole area you will visit. Clicking on different parts of the map will show you all of the place names and you can always zoom in for more detail. Any one route can only go via four different places so if you want visit more than that the route will need to be split into two or more sections. So, let's pick a few points. Bangor over on the coast to have a look at the seaside, stay there about an hour, then down to Criccieth for perhaps a quick visit to Portmerion. Allow another hour for that then on to Devil's Bridge for half an hour before returning home via Shrewsbury. Looks okay for a day, so let's set off at 8 o'clock and see how it goes. A couple of minutes calculation gives us four routes to choose from and a time of just over 9 hours, should be back in time for tea! Study the map for a few minutes, choose your route, print it out and off to the car!

The beauty of it is that you don't need a map in the car and whoever is navigating does not need any map reading skills at all - that could save a few arguments! The route is neatly printed out with details of all roads, the distance before turning off onto another road, the compass headings and the places to look out for on road signs. If you keep a eye on the milometer even the kids could tell you the entire route!

MORE THAN JUST A PROGRAM

Autoroute is great fun just to play with, particularly if you have any interest in maps or travel but it is far more than just another program to play with. If you travel on business, you could find it an invaluable time saver and with a little practice you need never again be late for an appointment. You can plan new day trips, go to familiar places by routes you have never thought of or plan a whole weeks touring holiday with customised routes available day by day. In short whenever you need to look at a map before getting into the car a couple of minutes with Autoroute will save you a great deal of time and and will certainly make your journey easier.

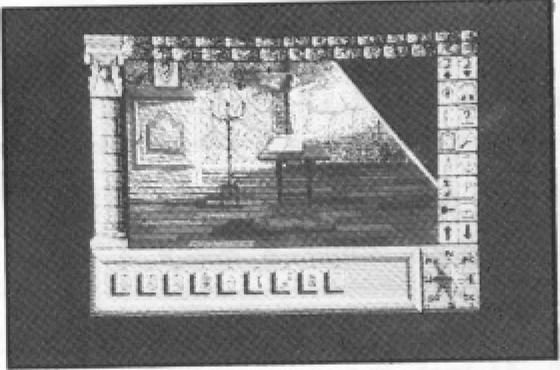
After you have used Autoroute a few times you do begin to wonder 'is that it?' because there are few frills or extras, it does what it supposed to do quickly and simply but isn't that exactly what a good computer program should do? The 'fancy' bits on other programs lose their appeal after a short time but Autoroute will last as long as you keep driving and few other programs will have that sort of life!

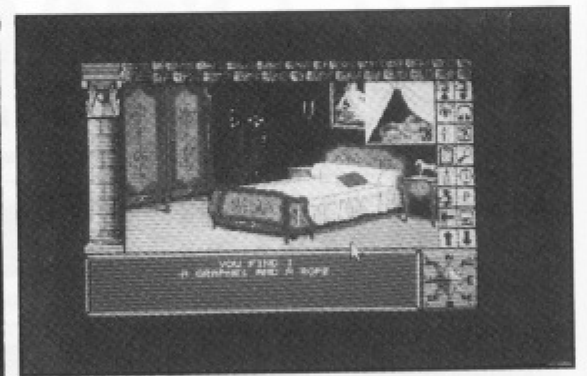
GO ON, BUY IT!

Autoroute is a cracking program for anyone who travels at any time but here's the rub - the price is £149.50. Seems a lot but the program will probably appeal mostly to business users who are used to paying that kind of money and it will probably not sell in vast numbers. There is also the fact that the maps are based on Crown Copyright Ordnance Survey material and the rights to use that do not come cheap. Any business user can easily justify the expense but for personal use? Well, you would probably pay a similar price for a couple of applications or half a dozen games and you will certainly get as much use from Autoroute as you would from a word processor or DTP package. Autoroute will run on any ST but the route finding will slow down considerably on a 520 due to the fact that there is insufficient memory to hold all the routes. The penalty is lots of disk swapping but even that will probably be quicker than working out your route from a map. Give it a go, it's not every day that a truly unique piece of software comes along!

Autoroute costs £149.50 and is available from Next Base, Unit 18, Central Trading Estate, Staines, Middx, TW18 4XE. Telephone 0784 60077

CHRONO QUEST
Psygnosis
£29. 95





Reviewed by Damon Howarth

This is an adventure game in the style of The Uninvited and Deja Vu in so far as it is controlled by icons. It would appear to be Psygnosis' first foray into the adventure field and is presented with their normal colourful flair.

The colour picture on the box sleeve is essential for the copy protection scheme, since it is through this and a see through grid that the predominant colour has to clicked in to ensure the game will start. While this sounds simple there can be problems and on one loading it took me ten tries to discern the dominant colour of some of the multi-coloured squares, if you happen to be colour blind you can forget Chrono Quest altogether! Once I finall got the program to run though it was well worth the effort as the artwork of the game is set to rival the best of Magnetic Scrolls and it is also functional!

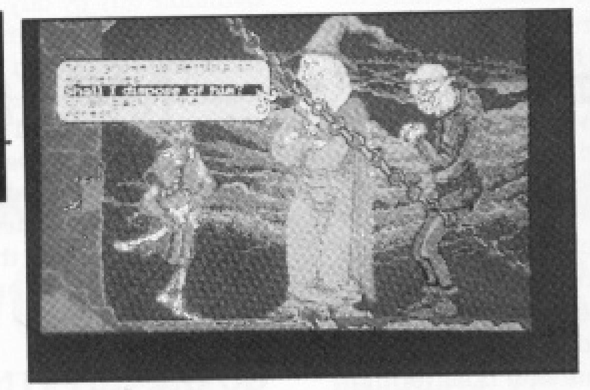
The task that is set is to clear your name of the murder of your father by finding the evil servant who has done the dirty deed. The story starts in a French chateau where the adventurer needs to discover the punchcards that operate the time machine. This is where the story becomes novel as there is a great deal of H. G. Wells type Victoriana to cope with while coming across many strange items. There is a strict order of visitation to the time zones and should that be done wrongly then the quest will fail.

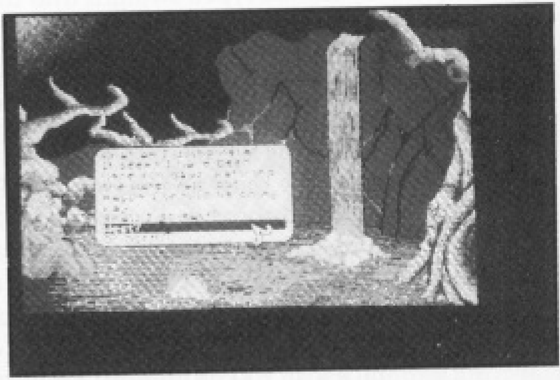
The control system is very friendly with some user jokes (look in the secret room of the chateau!) and even allows users with more than one drive to direct the drive select for the other 3 data disks. I found that the whole effect lent itself to the period the adventure was set in and the game was not too difficult to get in to.

There are the odd spelling mistakes and sometimes the objects that are placed do not always go where they are aimed at. The program is somewhat forgiving of this and therefore acts to the spirit of the move as opposed to the actuality. Having said that and commending Psygnosis on their expertise I still feel that this style of adventure limits the user to the icon commands and if the handbook is to be believed then ST users do not need or have as many command options as their Amiga cousins.

In conclusion Chrono quest has a good plot with a workable control system, effective artwork and better than average game-play. I quite happily recommend it to most adventurers of some experience, even to the text only purists who could well find it a refreshing change and a definite relief from Princess hunting!

THE GRAIL
Microdeal/MichTron
£19.95





Reviewed by John Sweeney

The Grail is a graphic adventure which uses the mouse for all its input. Its a sort of cross between a comic strip and a 'fighting fantasy' style game. The full screen graphics show the scenery, including you, a powerful wizard, and the characters you meet. The graphics are excellent, fantasy-style hand-drawings. By pointing at the characters you get their dialogue displayed on the screen, just like the word ballons in a comic. (In fact you very occasionally have to point at an object, but the instructions don't bother to mention that!) If part of the dialogue turns black when you point at it, then you can choose to click on it in order to move on through the story. Sometimes there will be multiple sections of black dialogue - then you have to make a choice - just like all those adventure books filling the shops these days!

Your objective is to find the Grail in order to cure all the locals of the dreaded 'mutant disease'. If you make the right choices (and most of them are fairly obvious if you read the back of the box where it says "the Grail can only be approached by a pure soul"!), wander around long enough to meet all the local denizens (which takes an EXCESSIVELY long time since the picture loads take 10 to 25 seconds every time you move!), and do a small amount of mapping, then you will probably finish the whole thing in three or four hours. On a 1Mb machine you can create a 384K RAM disk and copy disk 2 into it - this speeds responses up to 6 to 8 seconds and you will probably finish a lot quicker!

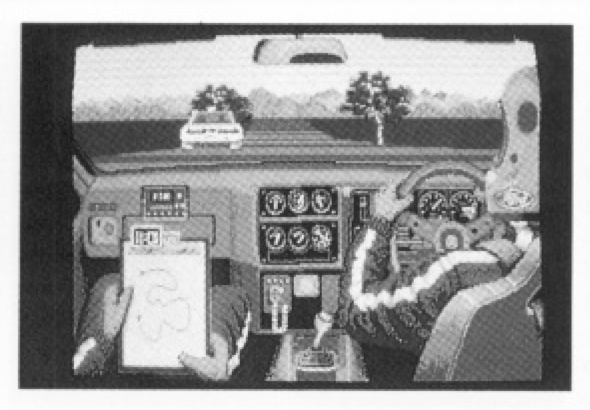
Make sure you turn the volume up to get the odd sound effect, and read all the little asides from your companion - a gruesome fellow given to dropping such gems as "Did you see that half-decomposed beggar crawling on the floor"!

Watch out for the Save/Restore routines: I met a new character, did a Save (Placemarker), and he disappeared! I tried a few Restores (Find Placemarker) and he reappeared about 1 in 3 times!

There are too few choices, no real puzzles, and not a lot to do really. Shame, because the pictures are good and so is the concept. The whole thing seems more in the nature of a sampler than a full price game. If it was quarter the price then I could thoroughly recommend it for the 1040. How can Microdeal publish something like this at the same price as such excellent value games as their Tanglewood?

LOMBARD RAC RALLY
Mandarin Software
£24.95

Reviewed by John Davison jnr



Lombard RAC Rally from Red Rat/Mandarin Software is a realistic simulator of the world famous motor rally. The car in which you must partake this gruelling test is a 300bhp Ford Group A Sierra Cosworth.

You must complete the five qualifying stages, down winding roads and mud tracks, through forests and over mountain ranges (although I wasn't aware there are a vast number of snow capped mountains near Telford, which is where some of the action is based!). As well as these hazards you must navigate your way at night or through thick fog. If you manage to finish a section within a qualifying time you are awarded a cash prize which can be kept or used to put towards the workshop repairs of any damage your car suffers.

Upon loading the game, you are greeted after a fairly ordinary loading picture, by a menu giving you the options to race a full rally, to compete in any one of the five stages (each comprising of three sections), to repair any damage which has been inflicted upon your car (provided you have enough money) or to participate in a T.V. interview to gain extra money. This 'interview' is in fact a quiz where you have answer certain questions related to the rally in order to win the money. You are awarded cash for each correct answer and you lose money for each wrong answer.

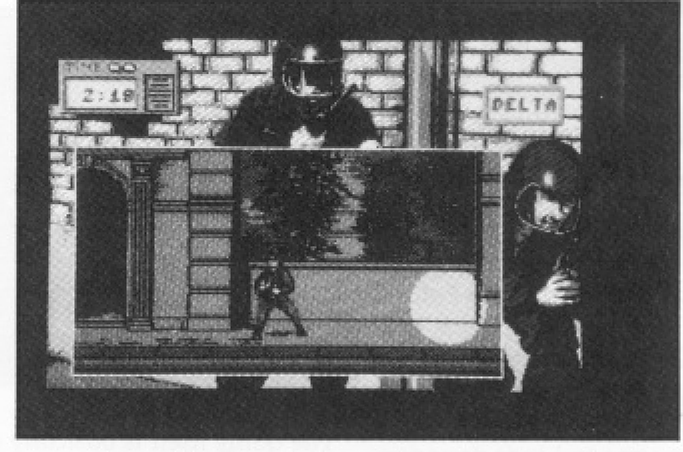
Once actually racing, the view which you have of the rally is from inside the car behind the drivers left shoulder. The screen is about two thirds filled by the view of the dashboard with the remaining third being the three dimensional outside view of the road and the scenery. The instruments on the dashboard all work and are in the positions which you would expect to find them. The outside view is well drawn and animated smoothly with many varying objects by the roadside ranging from signposts to trees and bollards. Also, very occasionally you may meet other cars on the track and these too are well drawn to the point of being recognizable makes and models. The most impressive piece of animation within the game however has to be the driver. Each time you move the steering wheel or change gear his arms move incredibly smoothly and realistically. Considering their relatively large size and the ST's lack of a blitter this movement is most impressive, particularly when he reaches across to the gear lever to change gear.

The sound in the game is fairly dull and uninteresting apart from the digitised speech at the beginning of each section which is considerably more impressive than Red Rat's last effort on 'Screaming Wings'!

The game is very easy to control and is easily as playable as any other driving game. Overall I enjoyed Lombard RAC rally as it is a simulator which is not spoilt by going 'over the top' in a way which makes it too complicated to play. The comprehensive manual not only tells you how to play the game but also gives a history of the rally. Mandarin claim that the game was written 'with the help of RAC drivers to guarantee its authenticity', and it shows in the game's realism. Overall a very good game which can certainly be recommended.

HOSTAGES
Infogrames
£19.95

Reviewed by John Davison jr



An Embassy has been overrun by a group of terrorists, and your job as the Head of the Terrorist Intervention Combat Team is firstly to place your crack marksmen in nearby buildings and then position your team of specialist paratroopers on the roof of the Embassy. After descending the side of the building by rope, protected by the marksmen, these paratroopers must infiltrate the building and search for the hostages and their captors.

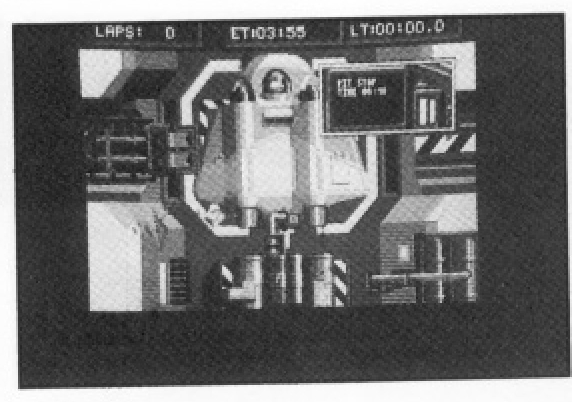
The game loads with a most impressive animated sequence as the terrorists arrive in their car. The sequence is accompanied by some very good sampled sound effects. The game then moves onto the first section where you must move your men along the dark alleyways avoiding the terrorists' sweeping searchlights and gunfire. If you manage to position any of the three men in their places you are then given control of the paratroopers as they abseil down the side of the Embassy and in through the windows. Once inside you move your men around in search of terrorists and hostages by guiding them from room to room with the aid of a map.

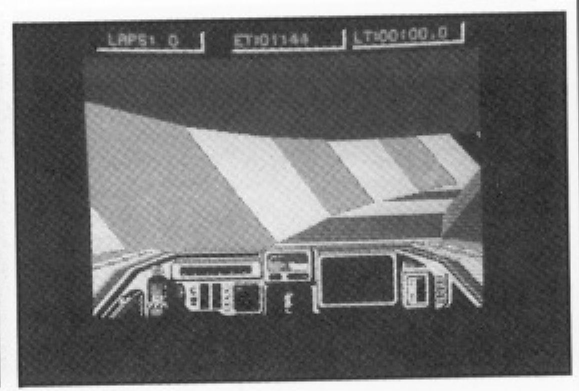
The whole game at first seems very impressive, and as you begin to play the first section it appears to be very exciting with its eerie sampled drum beat and dark atmospheric graphics, however after many repeated attempts to actually get anywhere with the game the novelty begins to wear off and it becomes tedious when you have to repeat whole sections. Despite this the game is fairly easy to get to grips with in the way of control, although some actions seem fairly clumsy at first.

In appearance the game fits into the style which Infogrames seem to have developed for themselves and is very reminiscent of other French games. The graphics are well drawn and suit the game very well, and the sound effects and music are extremely good, being in most cases sampled and of a very high quality. However in my opinion the level of playability could be much higher as the game seems to depend more on its striking graphics and sound rather than rivetting gameplay.

My initial impressions of 'Hostages' led me to believe it was a game of very high quality, however after playing it for some considerable time I had to conclude that there is a certain element missing, that being playability. Without this factor the game is unlikely to have lasting appeal.

POWERDROME
Electronic Arts
£24.95





Reviewed by
Damon Howarth

The roar of engines and the flash of scrolling racetracks have left an indelible print on my mind. Powerdrome has all the intense excitement of the race track and many of the problems of a flight simulator. My first sight of this game was as a demo on a free disk attached to another magazine and on that it looked fairly ordinary and hardly worth a second look. Thus I was somewhat sceptical when I booted up the real thing but if any of the readers of this magazine shared the same misgivings then I am delighted to say that the finished product is a revelation. The care in production and explanation that accompanies the game and the learning modes that are possible for those who do possess Dan Dare reflexes or Mike Mercury's driving skills make the whole affair more than playable. The game is based on the new futuristic sport of flying high speed Typhoon aircraft around enclosed circuits in order to win the supreme championship.

Normally I do not find either Grand Prix type games or Flight Simulators entirely to my taste but something in the multi grade structure of this software tickled my adrenal glands and left me playing late into the night. The controls are simple although they need practice to master (I still have nightmares with altitude control) and the machine plays hard in the races but there is a definite challenge to experience here. Even in becoming accustomed to the various tracks of the series a variety is apparent, with different settings for spoilers and shockers, handling tweeks for fast or bendy tracks, all necessary to win races.

Each of the sections has been designed with care in an attempt to offer the best atmospheric feeling for that mode. The pits with their automatic replacement modes and the tuning that is possible and the lap timers that let you decide on your optimum speeds and then to decide if that is enough to race, all keep the player in a hot seat of excitement and feeling strongly involved. There are even necessary options to tune the aircraft for different environments such as Methane or rain filters to ensure the engines keep turning. Damage reports and leaderboard positions show on the clear cockpit computer.

There is even a two player mode which involves the linking of two STs together to allow head to head simulation racing. In this mode only two ships race but the competition is then produced by another error prone devious human rather than a pre-programmed chip.

All in all this is a good quality program that is well worth the time to get into. Only play if you are prepared to devote some time to it and if you are not one of the fly-and-shoot brigade. I feel it is one of the best ST games I have seen recently.

ACTION SERVICE
Cobra Soft/ Infogrames
£19.95



Reviewed by
John Davison jr

Action Service is a 'Commando School Simulation' in which you take your trainee through a gruelling test of skill and ability.

The game has five different modes, four of which are sections of the game and the fifth is a construction set where you can build your own courses. The four game modes are 'Physical' where you must negotiate as quickly as possible many different obstacles without tripping over, 'Risk' where you have to show your skill in handling grenades and bombs whilst avoiding mines and rifle fire 'Combat' where you must battle it out with guards either using hand to hand fighting or your gun which is filled with rubber bullets, and lastly there is the 'Combination' route which is a mixture of the three previous tests in one long outing.

The game itself is basically of the horizontally scrolling variety where you must control your soldier through various actions such as jumping over walls, crawling under fences and so forth. The screen itself is designed to look like the control centre of the training school. There is a video system displayed at the bottom of the screen with which you can control the 'action replay' facility which the game offers. Here you can record your military exploits and then play them back to analyse where you went wrong. Your view of the proceedings outside of this control room is made to look like a large video 'wall' which makes up the large picture using a number of smaller 'screens'. This effect does little for the game itself and makes the playing area look very cluttered. The control panel at the bottom of the screen also allows you to do other tasks within the game such as view high score tables or load and view saved 'replays' and score tables.

The graphics in 'Action Service' did not impress me at all. They look dated in their style and various objects and characters on the screen tend to become blurred in some instances. The scrolling is relatively smooth although with the rather odd screen layout it is quite difficult to tell. Sound on the other hand is superb with some very good quality speech samples and a dramatic tune using digitised voices on the title screen.

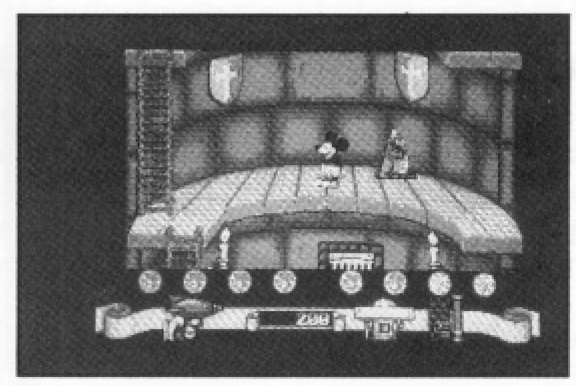
I was not terribly keen on 'Action Service' and it is not the type of game which makes me constantly want to play it. However it may appeal to some people so I advise that you try it out before buying.

MICKEY MOUSE
Gremlin Graphics
£24.95

Reviewed by John S Davison

A few years back Mickey Mouse appeared on the 8-bit machines in 'Mickey In The Great Outdoors', now he's made it onto the ST. Here he has to retrieve Merlin's magic wand, recently stolen by the Ogre King and four witches. It's been broken into four pieces and hidden in the towers of Disney Castle, each piece guarded by a witch and hordes of rather unfriendly monsters, ghosts, and ogres. These can be killed off either by a squirt of enchanted water supplied by Merlin or by a swift bop or two with a rubber mallet, would you believe! So, armed with a mallet and a waterpistol full of enchanted water Mickey enters the castle to retrieve the wand.

Using the joystick, you control Mickey's progress through the castle. The towers are progressively higher, each having more floors than the last. The floors are reached by ladders, which Mickey has to climb. Some floors have doors into side rooms through which monsters can enter, so



Mickey has to board them up to prevent this happening. Contact with monsters drains water from the waterpistol, and if it runs out then the game's over. The doors also lead to sub-games, which have to be successfully completed to obtain the materials with which to board up the doors.

These sub-games have Mickey searching out the materials in a maze, bursting bubbles with his mallet, hammering a certain combination of corks into holes, and turning off dripping taps in a certain order - while being continually hassled by various meanies. Failure causes Mickey to be dumped back outside the door minus the key. Additional keys and other useful items (like extra water) may be earned by squirting or bashing monsters.

Once all doors are boarded up he can go onto the battlements and face the witch of that tower. She bombards Mickey with fireballs, which he has to dodge. Three hits from these and it's one fried mouse and Game Over. She can be beaten by chucking mallets at her, fifteen(!) hits and she's done for. Mickey then gets the piece of wand she's guarding, and can go on to the next tower. When he's got all four pieces of wand he tackles the Ogre King, who can be vanquished by fifteen(!!) squirts with the water pistol.

The bad news about this game is the difficulty in beating the witches, as Mickey always seems to get killed off after a few seconds battle with them. There's no Game Save feature, so failure means a restart from the beginning and a replay of all the sub-games - very frustrating. The good news is that the game's graphics are a delight. They're bold, clear, and colourful yet still seem to have plenty of detail. Animation is excellent, especially that of Mickey himself, and I particularly liked the way shadows dance on the wall in the flickering torchlight. Sound is best described as adequate, being sound chip generated rather than sampled.

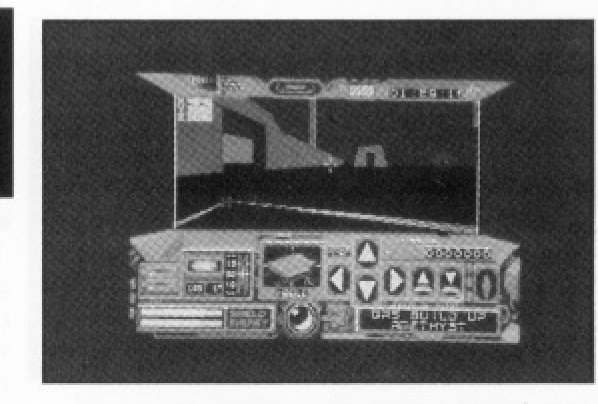
All the Disney based games I've seen in the past have been fairly gentle ones, often aimed at young children. This one's different, having a rather nightmarelike scenario and involving a level of violence I'm not sure I like seeing associated with Mickey Mouse. However, the kids seem to love it, although their interest could soon wane if the challenge of the witches can't be overcome.

DRILLER
Incentive Software
£24. 95

Reviewed by Damon Howarth

Mitral, one of the two moons of Evath, has been overmined by profit hungry industrialists and is set to explode due to a massive build-up of gas. It is up to you, in the absence of a large enough pack of Rennies, to relieve the internal pressure and save the world. Such is the plot premise behind this 3-D conversion from the 8 bit world.

The game play is fast and furious and the 3-D 'Freescape' developed for this game is extremely effective, there is certainly the feel of being within the system and the adrenalin rush is present as laser fire screeches across the bows. The game is not solely shoot and kill there are problems to be solved, such as how to cross a gun filled chasm or open the secret door, but most of these can be intuitively sorted out with deft use of a laser. Your prime aim is to



"not so much shoot 'em up but more think 'em out"

plant or teleport drilling rigs onto various sites to obtain maximum gas release and thereby secure one of the eighteen areas. Should a rig be placed in the wrong position then insufficient pressure is released and further progress is impeded.

Copy protection is once more in the form of inputting a relevant word from the supplied manual and this does allow the user the optional luxury of backing up onto hard drive (if owned), or more usefully maintaining a working copy to protect your hard earned investment. The package also contains a small cardboard map which by joining flap A to tab A etc. creates a multi-coloured cube to act as a sort of globe, which seems somewhat essential to finding your way around. It also gave the cat something to play with while I was engrossed in the proceedings and forgot to feed him!

Game play is strong and uses a mixture of mouse and keyboard to control the mining vessel, the style is reminiscent of Elite although that just wins out on the quality of it's graphics. The spot effects are adequate but there is no music or other form of soundtrack to distract or entertain the miner, I am not sure if this is a good thing or not since a great deal of thought and fast reaction is needed at various points in the game. My first impression was that a policy of - shoot anything that moves and if it doesn't, shoot until it does - was a good one but there are certain locations where this is a distinct disadvantage. Beware for example of blowing away the lights in the storerooms, it is also advisable not to shoot the power cubes or else your energy supplies rapidly dwindle.

All in all I enjoyed this and think it would be an excellent addition to any game collection, it is not so much shoot 'em up but more think 'em out!

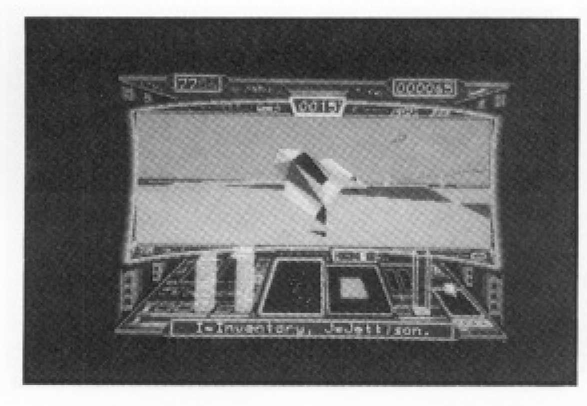
STARGLIDER II
Rainbird Software
£24.99

Reviewed by John Davison jnr

The long awaited sequel to the classic shoot 'em up, 'Starglider', has finally arrived. The new game combines the speed of the original with superb colour filled graphics and a far more complex scenario.

The game is set two years after the Egron's unsuccessful invasion of Novenia (the setting of the original) and the wreckage of the invasion force still lies scattered across the planet. The heroes who liberated Novenia now lead very separate lives. Jaysan is living it up in luxury and generally enjoying himself whilst Katra is helping Novenia's redevelopment project. One day however, news of another Egron threat reaches the High Council. Jaysan reluctantly joins Katra to fly a mission which will destroy the Egron threat. ICARUS, the latest prototype police cruiser, is commandeered for the two heroes, and the duo blast off.....

The game itself is very much more im-



'breathtaking speed and smoothness'

pressive than its predecessor. It reminds me of a cross between Starglider with some elements of Mercenary thrown in. Unlike the original, Starglider 2 is not restricted to one planet, it is in fact a whole solar system in which you can roam about the five planets and their moons. On several of these planetary bodies there are underground tunnel networks where you can be fitted out with new weapons. You will also find the parts you require to help build the Neutron bomb which must be used to destroy the Egron base on one of the outer moons.

The Egron attack force comes in many different shapes and sizes as in Starglider, including different types of walking monsters, fighters, colossal Starglider mechanical birds and other assorted craft. As well as these, whilst flying from planet to planet you will encounter space pirates and the huge space whales! All of these are three dimensional colour filled objects and move with absolutely breathtaking speed and smoothness.

The graphics within Starglider 2 are incredible, all of the animation is amazingly smooth and the objects which you fly past and around cannot be faulted. Each planet's landscape is made of a patchwork pattern which helps to give a greater impression of movement and the large sun at the centre of the system rises and sets on each planet with some beautiful skies. The sound in the game is also very good, especially the sampled music (which loads on double sided drives only) on the title screen. This is also supplied in an extended form on a cassette included with the game.

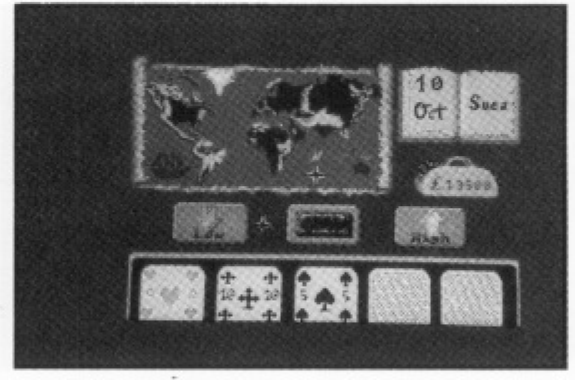
The packaging, as with all Rainbird games, is superb and along with the game disk and the music cassette you will also find a keyguide, a playguide and a novella written by James Follet which is both amusing and gives an excellent introduction to a complex game.

Overall Starglider 2 is a superb quality product and this review has merely scratched the surface of its impressive features. It truly is a worthy successor to Starglider.

AROUND THE WORLD IN 80 DAYS
Pandora
£19. 99

Reviewed by Damon Howarth

This game claims "the fascination of a world tour" and also explains that it is based on the activities of Phileas Fogg star of Jules Verne's Novel and David Niven's film. The packaging has screenshots of inestimable quality taken from an Amiga and it boasts 3 disks to fill your machines RAM. The game, almost needless to say, does not manage to live up to the promise of the box. It loads with a variety of screens some of which show great promise in the artwork and even the sound effects start off in a promising manner but then Pandora's box is opened. The object of the game as described on a none too informative slip of paper, is to work your way



through several arcade games to reach the starting point in London within specified time and money limits.

The graphics which accompany each game include large sprites with collision problems which, considering a few of the games need response speed and accuracy, is daunting. In the first game there appears to be a Vixen/Thundercats type game which then devolves into a platform and ladders affair to reach the next sailing point. This game does not rate as particularly exciting and at times is plain frustrating owing to the difficulties in making your character do as the joystick suggests. The intervening option of bribing your steamer owner into more speed or playing Hi-Lo cards to create more capital is pleasant but far from original. The second game of a Japanese balancing act is a

'a collection of weak games'

problematic affair and again suffers from imprecise collision detection and less than effective graphics.

I have not yet plunged deeper into this game since neither the description of the other games nor their antecedents fill me with expectancy or the desire to discover more. This is especially frustrating when it is realised that failure in any part of the sub-games necessitates a complete restart as no save facility is available. The tediousness of the earlier games becomes magnified and eventually the daunting prospects of having to suffer the indignities of being eaten by Leopards and snakes or dropping cavorting Japanese tumblers becomes overpowering and what little charm the game has starts to pale.

I was not enamoured of this game as it appeared to be a collection of weak games stuck together under an attractive cover at full price in order to cash in on a classic book title. Perhaps as a 'budget' title it may have been excusable but as a full price game it is not. I hope that Pandora will learn from the myth and with their next release let hope out of the chest since I found that this particular effort left me despairing.

LORDS OF CONQUEST
Electronic Arts
£24.95



Reviewed by Damon Howarth

There are various forms of computer wargame, those of the Balance of Power style which need deep and long consideration of matters strategic and diplomatic, those of the UMS vein which just need fighting and those of the Diplomacy origins which need world conquering skills.

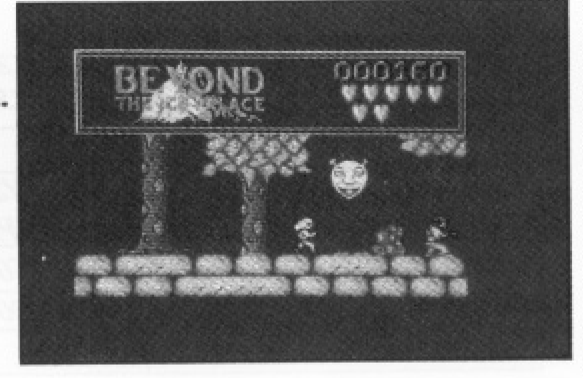
Lords of Conquest is a sort of Diplomacy game, a variation on empires, or perhaps Risk with trading in it. This game was described in an earlier issue of Page 6 under a discussion of 8-bit wargames and scored highly but my own impressions of it in 16-bit mode are mixed. The concept of a multi (1-4) player war and trading game is excellent but the machinery that drives the combat system is simplistic and occasionally perverse although nonetheless effective. The graphics are very blocky and not as well defined as they could be, there are sound effects that are reminiscent of some of the Ultima adventures but they are fortunately mutable.

The presentation of the game shows that only a little thought went into enhancing it for the larger machine. Do not expect the slickness of Balance of Power or the definition of UMS but if this is understood then a good game is available under the poor wrapping. The object is to obtain the stated number of cities by good fighting and trading. The combat is very simplistic and can be aided by economic developments creating boats and weapons, as such it is like Risk. The most entertaining thing is the veritable Atlas of maps to fight over and with the option to build your own battlegrounds there will be no chance of a lack of interesting terrain. The computer provides a very able opponent for the single player and it seems to have a shrewd idea of the best ground to take but it is as a multi player game that it excels since as with chess or other strategy pursuits, computers are never the most interesting opponent. Should there be more than two participants then the options to trade for goods to enable your objectives to occur makes many possibilities open. For example is it worthwhile considering the opportunity for you to gain enough gold to build your city by trading raw materials for weapon material? Here the software becomes a proper strategy game with the computer moderating and difficulty levels becoming irrelevant.

Forgetting the presentation the play becomes important and all other criticisms vanish in the wake of a solid evenings play with others. If you are a wargames fan and wish to see how well a computer can feature in your own club then this is a must, it is mechanically simple but so too is Chess. If you are a solo player then the whole may not be as enthralling but with the paucity of acceptable wargames available on ST then it is still a more than viable option. It can provide several hours of entertainment.

Oh yes! there is even an autoboot ramdisk in the package which enhances playing speed but does not autoboot the program. As I said a strange package but with a good overall effect.

BEYOND THE ICE PALACE
Elite
£19.99



Reviewed by Damon Howarth

In a land far away, many aeons ago, a group of goodly and wise magicians needed help to combat a nameless evil which was disturbing the cosmic balance. To obtain this help they applied nationalised industry's prime answer and sent a magic arrow into the air for some unsuspecting citizen to find. This arrow whisks the finder off to fight the evil and save the day. This in a nutshell is the plot behind this multi-scroll arcventure, the packaging of which belies it innate playability.

The loading screen is a copy of the disk box's inlay and is not particularly inspiring, but fortunately this is not the case with the game. The screen comes alive with colour and immediately your small, but beautifully formed, barbarian has to choose his weapon. This is not explained

'strong game play'

in the instructions, but the last weapon your figure walks over is the one prepared - there seems to be no proviso to change weapons but more are available en route. So having picked your weapon (I suggest that the small dagger is not your best choice) it is over a precipice to hunt vile evilness in its heartland. On meeting the first creatures it is obvious that all your weapons are missiles, this coupled with the guardian pigs (sorry, wood spirits) who will come when summoned acting as a sort of occult smart bomb.

Your enemies are varied, realistically drawn sprites, the scrolling, in all directions, is very smooth and there are problems to be solved. Granted that many of the problems are basically where to stand to wipe out a specific nest of baddies but there are definitely strategies which begin to suggest themselves as the game progresses. As some positions can prove dead ends there is even a thoughtful abort button function provided, as well as the sensible provision of user definable keys for spirit summoning and pausing. This game is promoted as a budget priced game, a term I find highly relative, but it does offer a strong game play with the feel of excitement and addiction. A very strong sense of, 'I know that I can get further next time', pervades, indeed it can and does put many full price games to shame. I was most impressed by the well formed backgrounds and the mainly good attribute recognition, although the hero does at times have an ability to stand on pieces of thin air.

I felt that the game lacked a little by its lack of control of weapon selection although it does mean that some care is needed in not walking over unwanted missiles since their parabolas and damage potential play very important parts in the game. This game is one I would recommend to any wishing to try arcventuring or even to hardened addicts wanting to refresh jaded pallettes.

Klingons on the starboard bow
Can you be serious about Star Trek?
John S Davison looks at

STAR FLEET 1
THE WAR BEGINS

Despite its name, this is a new version of what we Old Timers know as Star Trek. I'm not talking about Firebird's recent disappointing release with that title, but about the classic space battle simulation. Like the original Adventure game Star Trek was first played on mainframe computers long before home micros were even dreamed of. Since then countless versions have appeared under various titles, including that legendary 8-bit arcade action version Star Raiders. Star Fleet 1 isn't an arcade game, it's the traditional version, but incorporating a host of new features. Interstel say it's the start of a series, hence the suffix '1' in the title.

The basic game plan is simple - earn the command of an advanced starship then use it to seek and destroy a given number of enemy starships within a specified time. You can also call on the support of various starbases for replenishing energy and weapon supplies, and for essential repairs. The enemy will attack starbases, so your secondary objective is to protect them.

After successfully completing your training you can choose to command any of 36 starships. No, the Enterprise isn't amongst them, presumably for copyright reasons. You're then given your orders by Star Fleet Command and sent to patrol a specific region in space. This region is divided into a grid of 8 by 8 quadrants, with each quadrant subdivided into 10 by 10 sectors. Your job is to find and destroy enemy ships lurking here in unknown locations. The enemy aren't the expected Klingons and Romulans, but the warlike Krellans and their mysterious and elusive Zaldron allies (copyright again?).

INVISIBLE ENEMY

Enemy ships may be located using reconnaissance probes plus your ship's long and short range scanners. These reveal how many Krellan ships, friendly starbases, and star systems are contained in each quadrant. Then using main and auxiliary engines you can speed to the appropriate quadrant to battle with the enemy using phasers, torpedoes, and mines. A tactical display screen shows details of your current quadrant, indicating graphically what's located in which sectors. Zaldron ships aren't displayed - they use a cloaking device making them invisible to scanners and human eyes! I won't spoil your fun by saying how you locate them, but it can be quite a challenge!

Phasers can be set to disable rather than destroy an enemy ship, which may then be towed to a starbase using tractor beams. You can also beam marines aboard it to capture the crew and transfer them to your ship, however prisoners may escape and wreak havoc on any of your ship's twenty decks. It's also possible for enemy agents to sneak in while you're docked at a starbase, or for saboteurs to be beamed aboard from enemy ships in space. In all cases you have to locate and capture the intruder before he smashes up too much of your ship. Damage from whatever cause can be repaired in space or at a starbase, both costing you time and energy.

Control of your starship is highly automated, with much of the tedious mental arithmetic for navigation and weapon aiming required in some program versions, done for you. Purists can still use manual input if they wish - in fact there are circumstances where manual control is preferable. And automated systems sometimes do go wrong!

All actions generate entries in the Captain's Log, and these are displayed onscreen and also written to disk if required. This disk Log can be used later to drive the game in demo mode, or for 'action replay' so you can analyse what happened.

The game has many humorous touches. Again, I won't spoil things by telling you what they are, but there were times I found myself laughing out loud at the amusing incidents and mishaps occurring.

A game ends when you run out of time, get destroyed by the enemy, or destroy the enemy as ordered. Your efficiency is calculated based on your Krellan 'kill rate' plus various modifying factors, such as number of Zaldrons destroyed, ships captured, etc. Speed of promotion is based on your efficiency, with ten ranks from lowly Cadet at level 1 to Admiral at level 10. Ranks correspond to difficulty levels, so the higher your rank the harder it becomes to succeed.

Progress of each player is kept in a 'database' with entries protected by individual passwords, so each time anyone plays they 'log on' to the system and continue their career where they left off last time.

ENTHRALLING!

By whatever name, Star Fleet 1 is the finest version of Star Trek I've ever played. It's kept my whole family enthralled for hours - even my wife plays, so it really must be something special! It's not a graphics or sound showpiece, but the gameplay is superb. If you've played any version of Star Trek before and liked it, then you'll love this version. If you haven't, then give it a try anyway - you've got a real treat in store!

Title: **STAR FLEET 1 - THE WAR BEGINS**
Publisher: **Interstel**
Price: **£24.95**

SUPERBASE PROFESSIONAL

reviewed by Matthew Jones

Superbase Professional is a relational database program, with forms editor, programming language, and text editor. It is an enhanced version of Superbase Personal, which I reviewed in issue 29 of Page 6 (Sept/Oct 87). It still does everything that Superbase Personal does (they both continue to be sold, aimed at different levels of user), but has features which are required for 'professional' use. In this case I think professional means 'more demanding' as both programs can be used for home, office and any database use, but Professional has more features.

THE BASICS

It is difficult to review Superbase Professional without covering ground in the previous review. Thus I shall give a quick resume before describing what's new. Both versions of Superbase are relational databases, that is they allow access to more than one database at the same time, using 'related' fields of records. Thus you could have a database of events occurring in a festival, with the name of the venue in the field, and a database of addresses of venues. When you create a report, you could produce a list of events, with the full name and address of the venue being printed - the venue name for the event is used to access further data in the addresses database.

Both versions of Superbase display the individual records of a database in a window on the screen, in either Form, Record or Table view. To move from one record to the next, a 'control panel' along the bottom, modelled on video recorder buttons, is used. These allow fast forward/rewind, single stepping, full rewind/forward, pause and stop. Additional buttons allow access to the simple search facility, a complex 'filter' which is used to restrict the accessed records to a certain range, and the picture button which allows display of text and graphics files associated with a record - a feature which makes Superbase almost unique.

A Query filter is used to generate reports, which can have subtotals and totals, headings and can be sorted. The query dialogue uses a system used throughout Superbase, that of a pseudo-English command line, which allows you to determine which records are to be displayed/printed/updated. The line 'City LIKE "Glasgow"' would reduce the report to records which have the name 'Glasgow' in the City field. Query can be used for reports, updating, removing, importing, exporting, printing and the production of labels.

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Desk  Project  Record  Process  Set  System  Program
Superbase:  COPEUSER indexed on key_nu   Superbase program: COPEADDR
COPE USE                                 OPEN FILE "COPEUSER"
key_number F01011                        REQUEST "REPORT TO PRINTER?","",1,a%
Query order
Query definition
Title  Date                                                    Page
Fields  user,company,addr1,addr2,addr3,addr4,addr5
Report
Filter  company LIKE "*university*"
Order   company
Print  Disk  File                          OK  Clear  Cancel
                              OK  Clear  Cancel  COPEUSER;user.C
Telephone  041                                   INE e2;addr4.C
                                                 e2;country.COPEUSER NEWLINE
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WHAT'S NEW?

The first thing that you will notice is different is the packaging and the manuals. Professional comes in a slip-case, but still uses the spiral binding for the manuals - this time two. The manuals cover the program in two parts: the database and text editor; and the forms editor and programming language. The former manual is very similar to the Personal manual - it has the same basic layout, but a few improvements have been made such as a separate chapter on the Query facility (queries can now be saved to disk for later re-use), and a much improved font and titles. Obviously the Professional manual covers the extra options too, which are summarized in an appendix.

The new features of the database portion include time fields (in addition to dates), multiple input lines, and forcing of text fields to be upper case, lower case, or capitalised. At first I thought this latter option was marvellous, but then I discovered that it forces the first letter to be capital, and then forces the rest to be lower case. Thus the name "Fred Bloggs" becomes "Fred bloggs". This reduces its applicability! Professional has extra functions to support a database designer, including a SER() function which provides automatically incrementing values, LOOKUP in another file for validation, and a conditional (ternary) operator for conditional calculations. In general data input has been improved, but could still be better. It automatically presents you with a new blank record. Unfortunately it now asks you if you are sure you want to save - despite the fact that you just hit the save key - so you have to hit Return too. Another irritation involves the ability to supply defaults for fields, because they do not auto-delete during change, they must be deleted character by character which is tiresome.

TEXT EDITOR

The text editor in Superbase Professional is not good. It is just about adequate for the purposes required, but it could be a lot better. I wrote a mail merge letter with it, and it is not easy compared to basic word-processors. It would be good if Professional were to support the format of a full word-processor (though it is probably possible to output a file suitable for reading by such a word-processors mail merge facility). The text editor does support basic bold and underline though. The text editor is used for many purposes: displaying external text files; writing Superbase programs; mail merge texts; and editing of any ASCII file.

THE FORMS EDITOR

Entering data into a Superbase record is done in one of two modes, either the form view or record view. Record view displays the fields in a straight list, form view allows the fields to be moved around on the screen to improve the layout. A set of fields can also be marked as 'open', thus restricting the amount of information viewed, and/or the order of the fields. (This latter

ability is important when importing or exporting to ASCII files for merging, and other such reasons.)

Superbase Professional takes this layout mechanism into a whole new world. A separate program, the forms editor, is available from a menu option and allows the database designer to create an input form which is then used to input data. The forms editor is also used to generate complex reports more easily than the query dialogue. The forms editor is based on the principle of object oriented editors, and once you are used to it, achieves the task of creating good looking forms (which can be printed and used for data collection is desired). You may make up your form using text, images (imported Neo or Degas files), lines, boxes, and filled boxes. The attributes of each of these items can be changed, to adjust colours used etc. Text fonts can be selected from whatever you have available through GDOS, and can be in many sizes. I say easy to use once you are used to it because it is not intuitive, and needed quite a bit of reference to the manual before I could do everything that I wanted. For instance, I accidentally created a line which I did not want. But attempting to select it to remove it only created further lines. The only menu item marked delete was to delete a whole page, and eventually I discovered that you must carefully double click on the object, then select the Cut menu (there is no straight delete). Eventually I created a form suitable for my purposes.

The forms created do not have to include all the fields of a database. Indeed you do not have to provide enough room for the whole field in the form. If the input starts to exceed the available space, Professional will scroll the line. This is very useful should you decide to alter the size of a field later, as you do not have to change the input form too.

In use, the forms make Superbase Professional look much more impressive. You are able to set the order in which the fields will be processed, so input can be natural. Regrettably the use of the form removes the editing ease of the other modes. You are no longer able to click with the mouse on a particular character and edit - you are placed at the start of the line. You cannot use the cursor keys to move from field to field, only the Return key works, and that is only onwards - to go back you must use the mouse. I also dislike the way that Superbase too easily forgets the fact that a form is in use. If you temporarily use another facility, say editing the file format, it returns you to the Record view - you must re-open the form manually. Overall though, forms are well worth having.

The Form editor also allows you to specify a layout of a printed report (text only - no graphics). While not using it extensively, I found this awkward to use. It was easy to create the layout, setting headers, footers, summaries and the record layout for the printout; and to start the printout (you just open it); but I couldn't easily solve the problem I had. I wanted to have paged output as is available, but without having a records' data split across two pages. Reports are actually programs, which can then be used for modification into more powerful reports.

PROGRAMMING THE DATABASE

Superbase Professional includes a programming facility which allows access to all of the capabilities of Superbase, allowing you to create customised reports and operations. You do not need to program, you can still access much of the power of Superbase without programming, but it is there should you ever find yourself up against a barrier created by the menus.

The programming language is modelled on BASIC, and as well as basic facilities like subroutines, WHILE WEND loops and access to all the standard database commands for reports etc, includes the ability to define your own menus, thus allowing you to create 'mini applications' by replacing the standard menus. Superbase uses the text editor to create and edit programs. When you enter a line, Superbase capitalises keywords, and formats it properly. Unfortunately it does not perform any indenting, so large programs are going to become unreadable. It is impossible to give a new programming language a full testing, especially one closely tied to a database, but the language provided within Superbase Professional does appear to be quite thorough. If you intend to use it professionally, give it a good examination to determine if it has everything you need.

The main problem with the language, one that nearly everyone using it will encounter, is the fact that there is no introductory text that is going to help the new user. It is not an uncommon problem, many other language suppliers take the same way out, but they have the backup of readily available books to help the new user. With a simple alphabetical command reference, it is very hard to find what you are looking for. The minimum required is a list of commands by category, and an explanation of all commands as to WHY you would want to use it, rather than just what it does. The manual does contain a few examples, which point at some of the power of the language. Precision Software should think of writing another book to help new users with the language, otherwise it will go unused.

Superbase Professional also allows the function keys to be programmed with text. According to the context, these may either be Superbase language commands, or straight text for use in the text editor.

SUPPORT AND BUGS

Precision Software offers 90 days free support to Superbase users from the point of registration. Support after that date is charged for. The version of Superbase supplied in the 'off-the-shelf' box is copy protected, which is a big inconvenience. Luckily, you are supplied with an unprotected disk when you have registered. This also has a list of bugs that are fixed. Unfortunately, there are still a few bugs left, both Superbase and the Forms editor have bombed on me (after a disk full error caused by telling it I had a page size of zero lines, and using the Undo key respectively). Other problems I have had are just irritations. I feel a great need to have a keyboard alternative to the on-screen video buttons so that I can move from one record to another easily. Apart from the two bombings, none of the problems I encountered were serious.

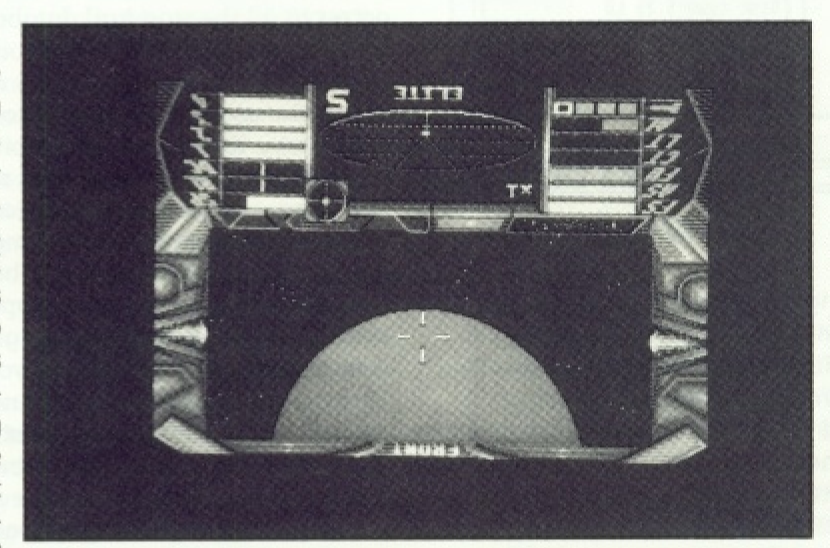
CONCLUSION

To sum up, Superbase Professional is a much more powerful version of Superbase Personal, while still maintaining the friendliness of the latter. It still has room for improvement, but it is suitable for using in professional environments, both for users and for application writers (especially if the forms can be retained continuously). At the price, it is not going to be bought for casual interest, but if you are looking for a serious database, Superbase Professional definitely one to consider.

Superbase Professional costs £249.95 and is published by Precision Software, 6 Park Terrace, Worcester Park, Surrey, KT4 7JZ. Telephone 01-330-7166

ELITE

One of the all time classics comes to the ST and John S Davison can't wait to play



Well, here it is - Elite - the game I'd given up hope of ever seeing in Atari format. It casts you in the role of a newly qualified trader about to start your career in interstellar trade. You have a basically equipped Cobra Mk III spacecraft, seven light-year's worth of fuel, and 100 Credits to your name. Your police record is Clean and your rating is Harmless, and you're currently kicking your heels in the Coriolis space station in orbit above the planet Lave. Out yonder are eight galaxies containing around 2000 planets, which you can visit to make your fame and fortune.

Your objective is to survive, and progress through the nine rating levels from Harmless to the coveted Elite status. To achieve this you need to enhance your ship's ability to fight and trade. This may be done by purchasing upmarket weaponry such as higher powered laser guns, energy bombs, extra missiles, and electronic countermeasures systems. Improved non-combat hardware is also available in the form of a docking computer, galactic hyperdrive, fuel scoops, and other useful items.

One small snag - all this costs money, which you can earn by trading goods between planets. This would be easy if the trading routes weren't thick with pirates who'd just love to reduce your ship to a mangled hulk and make off with your precious cargo. And then there's the Thargoids .....

DOES CRIME PAY?

Law abiding traders can make money by purchasing legal goods at one planet and selling them profitably elsewhere, by destroying pirate ships and earning bounty payments or by asteroid mining. The unscrupulous ones also trade in illegal items, such as slaves, narcotics, and firearms or by becoming pirates themselves, i.e. by attacking other traders' ships and snaffling their cargo. A life of crime may get you richer quicker, but you'll also have the police and bounty hunters chasing you, as well as other pirates .... and Thargoids!

Your ship's systems can tell you brief details about any planet's economy, government, and technological capabilities. This helps you decide whether it's a good bet for profitable trading or not, and whether it's likely to have the hi-tech equipment needed for your ship. Unfortunately, you can't see the planet's market prices of goods and equipment, you have to actually go there to find out.

After leaving the space station, a hyperspace jump and a space skip or three will bring you close to your destination planet. At this point you're likely to meet other ships, which can be any of twenty different types. Frequently, these include pirates who will eventually attack you. Care is needed when fighting back, as inadvertent firing on innocent traders guarantees the police will start taking an unhealthy interest in you. And they shoot to kill. Like Thargoids.

FIGHT OR DIE!

Against pirates, attack seems to be the best form of defence. Ignore them at your peril! Suspected pirates may be located using your ship's 3-D radar system, a central feature of the main playing screen. Manoeuvring control is via keyboard, mouse, or joystick and takes some getting used to, as you only have pitch and roll control. Hmmm, makes steering an interesting experience, anyway.

The combat graphics are magnificent, the smooth 3-D animation of the colourful ships wheeling and swooping around you are truly thrilling. With skill you can soon destroy your adversary, this being signalled by his ship flying apart in a spectacular explosion. Thargoids just might take a tad more effort, though.

When close enough to the planet your instruments guide you to its space station and another nailbiting phase of the game begins. The station spins about an axis passing through its docking port. You have to align yourself with it then gently move through while rolling your ship at the same rate of rotation as the space station. It's just like the famous docking sequence in the film '2001 - A Space Odyssey'. It's frustratingly difficult, making a docking computer to automate the procedure a priority buy.

Once berthed in the space station you can sell your goods and use the profit to buy fuel, equipment, and other goods for further trading and fighting. Survive long enough against pirates (and Thargoids!) and you'll find your rating gradually improves.

NO VECTOR GRAPHICS

The most obvious difference between the ST and original Beeb versions of Elite are the space vehicle graphics. The original somewhat confusing Beeb wire-frame vector graphics have been replaced with far superior 3-D colour filled versions which move with commendable speed and smoothness. Strangely, though, other parts of the program are graphically unimaginitive. For instance, the crude font used for the game's title, and the flat, single colour planetary disks.

The sound side, too, is disappointing at times. In fact, it's non-existent in places. For example, your spacecraft is launched in total silence, something which I still find oddly disturbing. Some sound effects are good, though. I particularly liked the excruciating screeches produced when your ship bores its way through hyperspace. Title music is Strauss's Blue Danube waltz, another affectionate nod in the direction of the 2001 film.

Despite some niggling little faults, Elite's superb mixture of simulation, action, and strategy are enough to capture and hold a player's interest for hours on end. It'll probably take weeks of dedicated playing before you achieve that exclusive Elite rating, so it's great value for money, too. Oh, and those Thargoids? Play Elite and you'll soon find out about them for yourself!

Title: ELITE
Publisher: Firebird
Price: £24.95

THE RESOURCE FILE

The Resource File is a service provided by PAGE 6 to help Atari owners find sources of information, help and supply. An entry in this feature does not necessarily imply any endorsement by PAGE 6. The retailers shown are those who are known to have supported Atari for some time but things change and readers are advised to check for themselves to ensure that the information is still current. We would ask any readers who find information to be inaccurate or out of date to let us know so that an entry may be amended or deleted.

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Tel. 0270 214118

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9, Davygate Arcade
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Tel. 0904 641862

USER GROUPS

ABC
Contact Mike Donoghue, 135, St. Leonards Road, Leicester, LE2 3BZ. Tel. 0533 700190. Retailer and both 8-bit and ST user groups.

A.C.E. USER GROUP
Contact Martin Sharpe, 28, Brooklyn Court, Bradford Road, Cleckheaton, West Yorks, BD19 4TJ. Tel.0274 851131 (24 hours). Monthly meetings, newsletter, trips, discounts etc.

A. U. G. (IRELAND)
Contact Mike Casey, 3, St. Kevins Park, Kilmacud, Co. Dublin. Ireland. Tel. 01 881830 or BBS 01 885634 (24 hours). Monthly meetings and newsletter.

BESTWOOD 8-BIT USER GROUP
Contact David Taylor, 60 Stevenholme Crescent, Bestwood Park, Nottingham, NG5 5JW. Tel. 0602 209735. 8-bit local users only

BOURNEMOUTH AND POOLE ATARI USER GROUP
Contact Colin Hunt. 248, Wimborne Road, Oakdale, Poole, Dorset. ST, 8-bit, hardware and software development.

BURY ST. EDMUNDS USERS GROUP
Contact Gary Brummage, 22, Ridley Road, Bury St. Edmunds, Suffolk, IP33 3HS. Please send SAE for details.

FaST (Fast ST Basic Users Group)
Contact Simon Rush, 42 York Road, Rayleigh, Essex, SS6 8SB. Tutorials in Basic and 68000. SAE for full details.

FLOPPYSHOP ST
Contact Steve Delaney, 50, Stewart Crescent, Northfield, Aberdeen, AB2 5SR. Tel. 0224 691824.

The GATEWAY CLUB
Contact Phil Herberer, 164d Radcliffe Road, Lakenheath, Suffolk. Tel. (Eriswell) 2363. All computer club with Atari section. Meets once a month.

LACE (LONDON ATARI COMPUTER ENTHUSIASTS)
Contact Glenn Leader, 143 Richmond Road, Leytonstone, London, E11 4BT. Tel. 01 556 0395. XL,XE, ST users. Great newsletter and PD library

LUG'S (LEEDS USER GROUP)
Contact Dave on 0532 717712 anytime. 1050, 810, cassette users welcome. Send SAE to P.O. Box TR7, Leeds, W. Yorks LS12 5PG

MACCLESFIELD COMPUTER CLUB
Contact Peter Solomon. Tel. 0625 20782 evenings and weekends. All computer club with Atari section. Meets fortnightly.

MERSEYSIDE ATARI CLUB
Contact Mike Lynch, 24, Oakdene Road, Anfield, Liverpool, Merseyside, L4 2SR. Tel 051 264 8435. ST ONLY. Regular meetings, newsletter and more.

NORTHERN ITALY ST FANS
Contact Carlo Bianchini, Viale Argonne 12, 27100 PAVIA, Italy

ROCHDALE ATARI COMPUTER ENTHUSIASTS (R.A.C.E.)
Contact The Secretary, P.O. Box 1, Rochdale, Lancs OL12 8TQ. SAE appreciated. All Ataris, meetings fortnightly

SIGATARI
Contact Glenn Leader, 143, Richmond Road, Leytonstone, London, E11 4BT. Tel 01 556 0395. For those interested in more unusual applications.

STARLIGHT ATARI CLUB
Contact Douglas Woodcock, 8, Ethnard Road, Peckham, London SE15 1RU. Tel. 01 639 3109 after 5 pm. Members with disk drives (8 bit).

ST CLUB
Contact Paul Glover, P.O. Box 20, Hertford, S13 8NN. Mail only(?). Worldwide.

VTB ATARI COMPUTER CLUB
Contact Christian Delabarre, Hekstraat 7, 9050 Evergem, Belgium. Tel. 091/26.29.29. For XL,XE,ST. Organised talks, visits etc.

WORLD ATARI PENPALS Int. User Group (WAP)
Contact Max Terveen, Magerhorst 8, Alphen a/d Rijn, 2402 LP, The Netherlands. Tel. 01720 45583. Members in USA, Canada, France, U.K., Greece, Germany, Saudi Arabia. Have circulating disk (8-bit and ST). Mail only.

There's a bit of room here for a couple more User Groups. Are there any others?

Do you want others to know about your group? Send details as above ONLY (5 words max. on Members!) on a plain sheet of paper headed RESOURCE FILE - USER GROUPS. That's all you get! We will not publish any other details such as meeting times and places tend to change. Appoint someone responsible to handle any enquiries received.

BBS

Name: **GAMLINGAY TBBS**
Number: 0767 50511
Hours: 24 Hours
Baud: 300 - 2400
Features: Atari SIG and program library

Name: **THE VILLAGE**
Number: 01 464 2516
Hours: 24 Hours/7 days
Baud: V21, V22, V22BIS, V23
Features: 8 bit area, ST area, CP/M area

Name: **INFOMATIQUE**
Number: 0001 764942 (Dublin)
Hours: 24 Hours
Baud: 300/300 and 75/1000
Features: ATARI SIG and program library

Name: **CHARLY**
Number: 0451/31642 from Germany 010/49/451/31642 from England
Hours: 24 Hours/7 days
Baud: 300, 8n1
Features: Atari 8-bit and ST areas. P.D. software. Some German required!

Name: **THE ARK**
Number: 021 353 5486
Hours: 24 Hours/7 days
Baud: 300 or 1200/75
Features: 8 bit with Downloads, hints, swaps etc.

Name: **CRYSTAL TOWER BBS**
Number: 01 886 2813
Hours: 24 Hours
Baud: 300 to 2400
Features: Atari section which needs your support!

Name: **THE GNOME AT HOME**
Number: 01 888 8894
Hours: 24 Hours/7 days
Baud: V23 viewdata
Features: ST area frame *1632.0#. ST Babble starts on frame *1632.9#

Name: **CBABBS**
Number: 021 430 3761
Hours: 24 Hours/closed Thursdays
Baud: 300
Features: ST/8 bit, Email to USA and Canada

Name: **LEICESTER CENTRAL**
Number: 0533 700914
Hours: 24 Hours
Baud: 300 and 1200/75
Features: 8 bit area and ST area

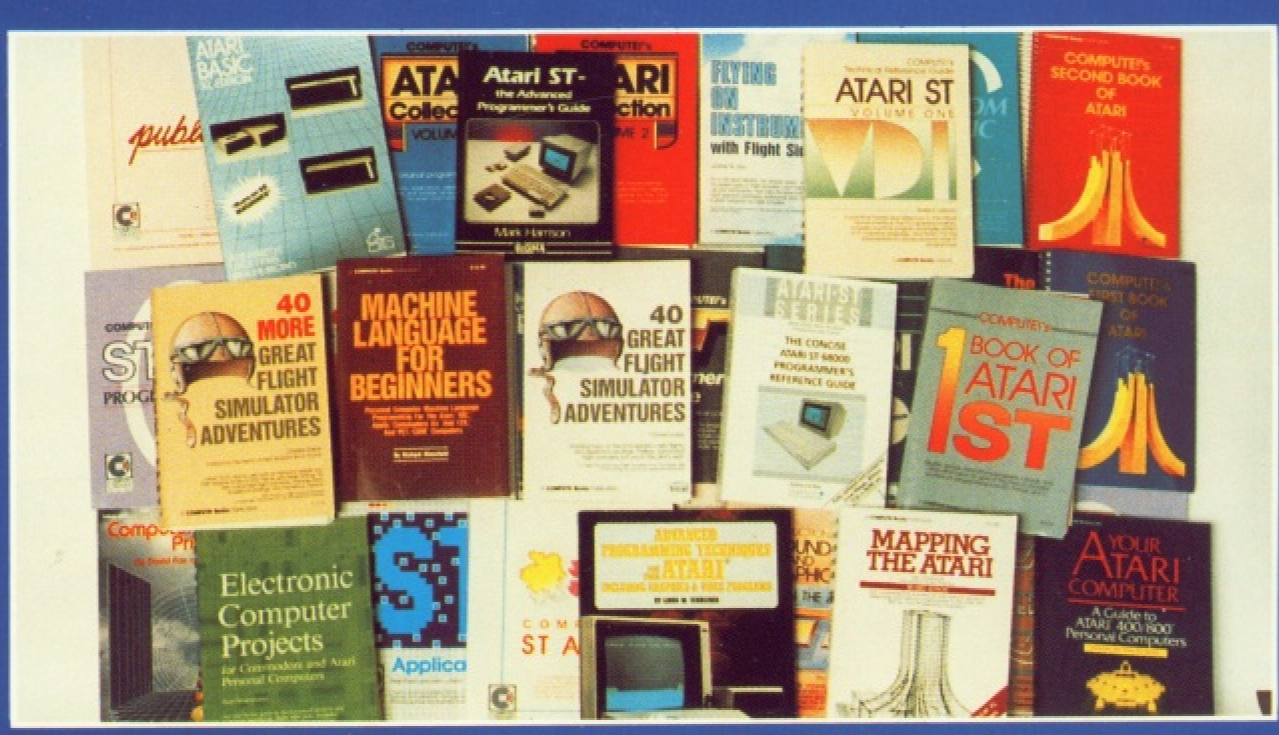
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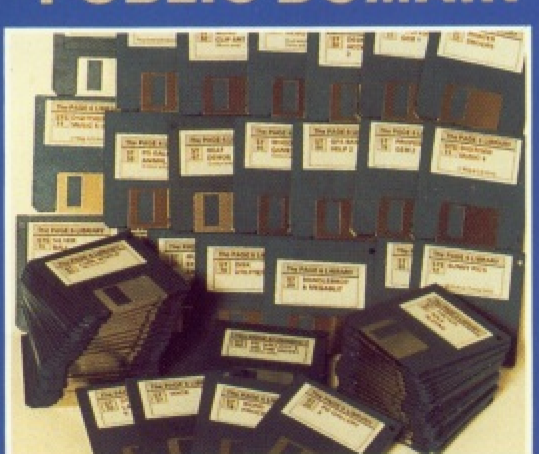
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